Dependence Asymmetry between Truth and Reality

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Abstract

The thesis aims to account for the pre-theoretic intuition of asymmetric dependence between truth and reality, namely, the intuition that truth depends on reality, but reality doesn't depend on truth. I start by delineating a framework to answer this question: according to this framework, a proper theory of dependence asymmetry should explain why truth depends on reality (truth-reality dependence) and why reality doesn't depend on truth (asymmetry). There are two readings of the second requirement: a strong reading and a weak reading. According to the strong reading, if a theory can offer a positive explanation for (truth-reality dependence) but not (asymmetry), then it is not a proper theory of dependence asymmetry. According to the weak reading, a proper theory of dependence asymmetry should, at least, offer a positive explanation for (truth-reality dependence). In addition, if there are two theories that can do that, then the one which can also provide a positive explanation for (asymmetry) is a better theory.

With its research framework, the thesis explores existing theories of dependence asymmetry in the literature. Based on whether a theory accepts a genuine dependence relation between truth and reality or not, existing theories are divided into two groups (N group and Y group). The N group includes the conceptual account and the semantic mechanism account. Both accounts in the N group deny a genuine dependence relation between truth and reality. They differ in how they explain away the need for a dependence relation. The conceptual account (Dodd 2007; Schnieder 2006b) offers a conceptual explanation for dependence asymmetry: the intuition of asymmetric dependence is considered to be a result of an asymmetry on the conceptual level. The thesis raises an objection to the conceptual account: the conceptual account is problematic because it mistakes metaphysical dependence for conceptual dependence. The dependence asymmetry is about the former instead of the latter. The semantic mechanism account (Audi 2020; MacBride 2014) appeals to the semantic mechanism to explain the dependence asymmetry. Although the semantic mechanism account can explain truth's dependence on reality, it cannot offer a positive explanation for the asymmetric characteristic of the dependence. In other words, it cannot explain why reality doesn't depend on truth.

In contrast to theories in the N group, theories in the Y group accept a genuine dependence relation between truth and reality. There are three accounts in the Y group: the supervenience account, the truth-maker theory, and the grounding account. The supervenience account (Lewis 2001) appeals to the notion of supervenience to explain the dependence asymmetry. However, due to its non-symmetric characteristic, supervenience cannot explain why reality doesn't depend on truth. Hence, an asymmetric relation is required. As for the truth-maker theory, whether it can explain the dependence asymmetry depends on how the notion of truth-maker (and accordingly the notion of truthmaking) is defined. The thesis considers five main definitions of a truth-maker in the literature and concludes that it's most plausible to consider truthmaking as a kind of grounding relation (Griffith 2014; Asay 2017; Rodriguez-Pereyra 2015). In this way, truthmaking as grounding is the best candidate for a theory of dependence asymmetry.

The study of the existing theories tells us that an account that appeals to an asymmetric relation and offers a positive explanation for (asymmetry) can best capture the dependence asymmetry. Hence, the thesis proposes the grounding-representation account, which is a modified version of Schaffer's account of truthmaking (Schaffer 2010). According to the grounding-representation account, truthmaking is a specific kind of grounding relation with its specific generation form, which is representation: a true proposition represents the relevant portion of reality. With the asymmetric characteristic of grounding, the account can offer a positive explanation for (asymmetry). Consequently, the thesis concludes that the grounding-representation account is the best theory of dependence asymmetry.

Keywords— truth-reality dependence, asymmetric characteristic, truthmaking, grounding

Contents

1 Preliminaries

1.1 Introduction

Consider the truth that George Floyd was killed on May 25, 2020. Intuitively, this truth is dependent on what happened to George Floyd in reality, namely, that he was killed on May 25, 2020. On the contrary, the killing of George Floyd doesn't seem to depend on this truth. The killing is prior to the truth. Consider another truth that women of colour experience racialized sexual harassments.[1] This truth is dependent on what women of colour experience. On the contrary, their experiences of harassments don't seem to depend on this truth. In general, we have the intuition that truth is dependent on the corresponding reality, but reality is not dependent on the corresponding truth.[2] The dependence phenomenon between truth and reality is hence asymmetric. I call this intuition 'the asymmetric dependence between truth and reality'.

The question of the thesis is: how to account for the intuition of asymmetric dependence between truth and reality? Namely, how to account for the intuition that truth depends on reality, but reality does not depend on truth? I use the term 'intuition' here because our belief of the asymmetric dependence between truth and reality is pre-theoretical. The thesis aims to examine different theories which are used to account for this intuition and to improve our understanding of the asymmetric dependence.

Suppose that a researcher conducted an international survey and gathered people's opinions on dogs. She came to the conclusion that Samoyed is the cutest dog breed ever, and she used it as the title of her report. Now the title 'Samoyed is the cutest dog breed ever' is a sentence, which is a string of words and is organized by some grammatical rules. When one understands the sentence, one understands the propositions it expresses,[3] namely, ⟨Samoyed is the cutest dog breed ever⟩.[4] If her survey method is reliable, then ⟨Samoyed is the cutest dog breed ever⟩ is true. We say that this proposition is the truth-bearer. In this thesis, propositions are taken as truth-bearers.

1.2 Structure of the Thesis

The existing theories on the intuition of asymmetric dependence can be divided into two groups, based on whether they accept the existence of a genuine dependence relation or not: the first group maintains that there is *no* genuine dependence relation between truth and reality (I call it 'N group'); the second group holds the view that there is a genuine dependence relation between truth and reality (I call it 'Y group'). Both N group and Y group agree with the intuition of asymmetric dependence. They differ from each other in the appeal to a dependence relation. The Y group uses the dependence relation to account for the intuition of asymmetric dependence while the N group needs other explanations for the intuition.

[1] Readers who are interested in the relations between sexism and racism, especially for women of colour, are referred to: (Mukkamala and Suyemoto 2018), (Gianettoni and Roux 2010), (Museus and Truong 2013), (Cho 1997) and (Welsh et al. 2006).

[2] Be noted that the asymmetric dependence is between reality and the *corresponding* truth: for example, between the reality that the lockdown in Germany is extended till April and the truth of the *corresponding* belief that the lockdown in Germany is extended till April. The asymmetric dependence is not between the reality that the lockdown in Germany is extended and the truth of the belief that Germany faces a shortfall of vaccines until April. The reason is: it could be argued that the lockdown situation in reality depends on the truth of the belief that Germany faces a shortfall of vaccines. The truth that Germany doesn't have enough vaccines is the reason why the lockdown is extended. Hence, my discussion is restricted to the interaction between the relevant reality and the corresponding truth. Furthermore, there are exceptions to the phenomenon of dependence asymmetry: for example (Asay 2017, 20), the proposition ⟨there are propositions⟩ makes itself true. For simplicity's sake, I ignore these exceptions. Readers might be worried that if these exceptions are taken into account, then the asymmetric characteristic doesn't hold anymore, since an asymmetric relation needs to be irreflexive. I ask them to take it that my current project is restricted to the cases that are asymmetric (which are most of the cases) and I leave the exceptions to future work.

[3] See (King 2018, 1).

[4] I use angle brackets for propositions.

To reiterate:

(N group) *there is no genuine dependence relation between truth and reality.*

(Y group) *there is a genuine dependence relation between truth and reality.*

There are two different theories in N group: the conceptual account and the semantic mechanism account. There are three different theories in Y group: the supervenience account, the truth-maker theory, and the grounding account. The following figure shows the structure of the thesis:

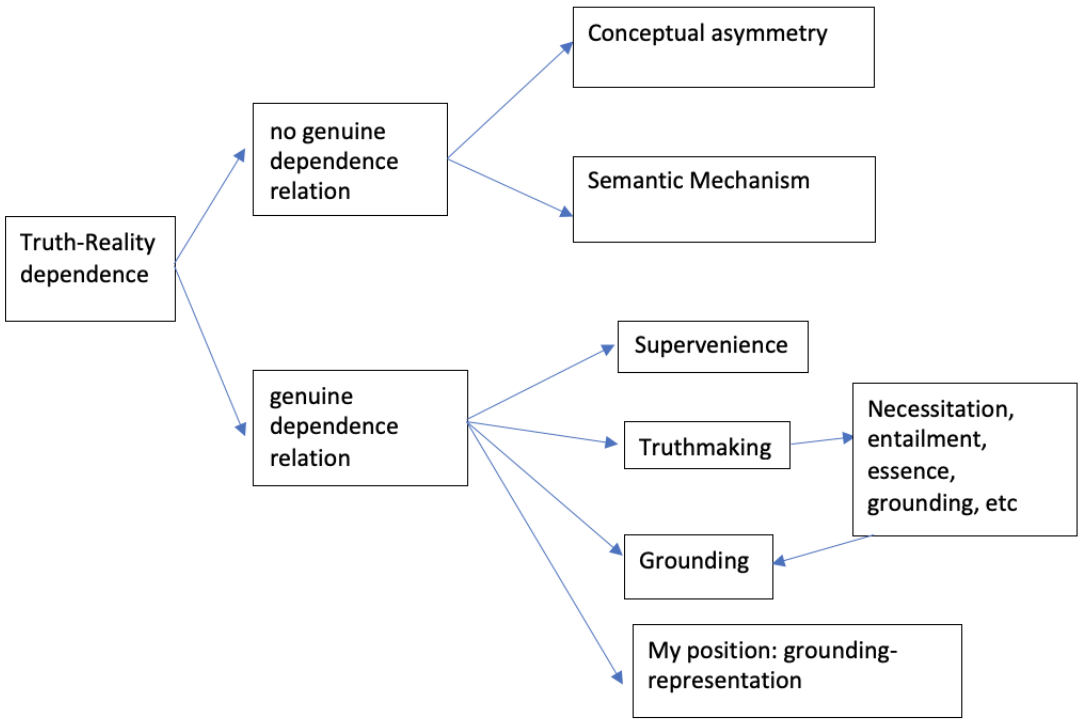

Figure 1: Thesis Structure

Note that, for the sake of convenience, I simply use 'dependence asymmetry' or 'asymmetric dependence' instead of 'the intuition of dependence asymmetry' or 'the intuition of asymmetric dependence'. That is to say, I use 'dependence asymmetry' or 'asymmetric dependence' to refer to the pre-theoretical intuition, without a necessary commitment to a genuine dependence relation between truth and reality. Since I have made a clear distinction between theories that accept a genuine dependence relation (the Y group) and theories that don't accept a genuine dependence relation (the N group), this shall not mislead the readers.

Furthermore, I use the term 'asymmetric dependence' and 'dependence asymmetry' interchangeably. They both refer to the phenomenon of asymmetric dependence between truth and reality, which is explained either with or without a genuine relation.

The thesis is divided into 5 main chapters:

Chapter 1 is a preliminary chapter where I introduce the topic (section 1.1) and present the structure of the thesis (section 1.2). After that I establish the research framework for the thesis (section 1.3) and motivate the need to account for the asymmetric characteristic (section 1.3.1).

Chapter 2 investigates several existing theories on the intuition of dependence asymmetry. The existing theories are divided into two groups. The N group (section 2.1) includes two accounts, which are the conceptual account (section 2.1.1) and the semantic mechanism account (section 2.1.2). The Y group (section 2.2) has three accounts. They are the supervenience account (section 2.2.1), the truth-maker theory (section 2.2.2), and the grounding account (section 2.2.3).

In chapter 3 I present the grounding-representation account. In my view, this is the most promising account for dependence asymmetry. Since it is a modification of Schaffer's account, I firstly present Schaffer's account (section 3.1) and then my modifications (section 3.2). After that I consider possible objections and offer my replies (section 3.4). Chapter 4 presents the conclusion of the thesis. Chapter 5 is a glossary where readers can find explanations for some technical terms in the thesis.

1.3 Research Framework

After showing the thesis structure, I present the research framework in this section. As I mentioned in section 1.1, the aim of the thesis is to account for the intuition of asymmetric dependence between truth and reality: truth depends on reality, but reality does not depend on truth. For convenience's sake, I separate this intuition into the following two principles:

(truth-reality dependence) *truth depends on reality.*

(asymmetry) *reality does not depend on truth.*

The principle **(truth-reality dependence)** is about reality's constraint on truth and the principle **(asymmetry)** asserts that this constraint is one-way. **(truth-reality dependence)** is used as a main condition to examine whether an account is proper or not: a proper account for the intuition of asymmetric dependence should at least offer a positive [5] explanation for **(truth-reality dependence)**. Besides, **(asymmetry)** is used as an additional condition: a proper account for the asymmetric dependence should also offer a positive explanation for the idea that reality does not depend on truth.

There are two readings of this additional condition:

(weak reading) *a proper account should offer a positive explanation for (truth-reality dependence). If both account A and account B offer a positive explanation for (truth-reality dependence), then account A is better than account B if A also offers a positive explanation for (asymmetry).*

(strong reading) *a proper account should offer positive explanations for both (truth-reality dependence) and (asymmetry).*

1.3.1 Motivating the Asymmetry Principle

Although the need to account for the idea that reality does not depend on truth seems pretty essential to me, not everyone would agree that we need an explanation for **(asymmetry)**. It's tempting to think that if truth depends on reality, then it would be automatically the case that reality doesn't depend on truth. Therefore, I motivate the need by (i) showing that we don't get the asymmetry for free and (ii) drawing two examples from the literature.

(i) We don't get the asymmetry for free. The main reason is that dependence phenomena don't have to be asymmetric. One example is mutualism, which is a common type of ecological interaction between different species (Bronstein 2015, 3-4).[6] They engage in mutualistic interaction, and they all benefit from it. If a dependence phenomenon doesn't have to be asymmetric, truth's dependence on reality and reality's dependence on truth are compatible. The dependence of truth on reality does not automatically rule out the dependence of reality on truth. Truth and reality might be interdependent on each other. A proper account for dependence asymmetry should be able to explain why they are not interdependent. In other words, it should be able to account for the asymmetric characteristic of the dependence between truth and reality.

(ii) I am not the first writer who pays attention to the asymmetric characteristic: for example, according to Aristotle (Aristotle and Ross 1924, 1051b6–8), 'it is not because we think truly that you are white, that you are white, but because you are white we who say this have the truth'. Correia and Schnieder (Correia and Schnieder 2012b, 26) also discuss the problem of asymmetry. They appeal to the asymmetry of 'because' or grounding to explain Aristotle's quote.

[5] I use 'positive' explanation to rule out the following situation: it might be plausible to claim that, if there is an explanation A for truth's dependence on reality, then we have automatically an explanation for the lack of dependence in the other direction, namely, the lack of the mechanism which is mentioned in explanation A. In this situation, a 'negative' explanation is given for the lack of dependence in the other direction. If an account offers a 'positive' instead of a 'negative' explanation for a certain phenomenon, this kind of situation is not allowed.

[6] One example of mutualism is between ocellaris clownfish and ritteri anemone.

In conclusion, as I mentioned in the research framework, a proper theory should explain truth's dependence on reality and also the lack of dependence in the other direction **(strong reading)**. For those who are not convinced by the need to explain the asymmetric characteristic. I offer them the **(weak reading)**: a proper theory should at least explain truth's dependence on reality. If there are more than one theory which can do so, the one which can also offer a positive explanation for the asymmetric characteristic is a better one.

2 Existing Theories

2.1 The N Group

Having established the research framework for the thesis, I examine several existing theories according to the research framework. This section is organized as follows. In section 2.1.1 I present the conceptual account. I start with the basic formulation of this account (section 2.1.1.1) and then elaborate on it by giving two examples (section 2.1.1.3): Dodd's account (Dodd 2007) (section 2.1.1.3.1) and Schnieder's account (Schnieder 2006b) (section 2.1.1.3.2). At the end (section 2.1.1.4), I raise my own objection to the conceptual account.

In section 2.1.2 I present the semantic mechanism account. I will firstly present the basic formulation of this account (section 2.1.2.1) and then elaborate on it by giving two examples (section 2.1.2.2): Audi's account (Audi 2020) (section 2.1.2.2.1)and MacBride's account (MacBride 2014) (section 2.1.2.2.2). At the end (section 2.1.2.3), I come to the conclusion that the semantic mechanism account is not a proper account if we accept the **(strong reading)**. If we accept the **(weak reading)**, it is a proper account. But if there is another account which can also offer a positive explanation for the asymmetric characteristic, it would be a better account than the semantic mechanism account.

2.1.1 The Conceptual Account

As I have mentioned, there are two different theories within N group: the conceptual account and the semantic mechanism account. Since theories in N group hold the view that there is no genuine dependence relation which lies behind the intuition of asymmetric dependence, they need other explanations for the intuition. Different theories in N group offer different explanations. In this section, I present the conceptual account, which makes use of resources on the conceptual level to account for the intuition.

I will firstly formulate the conceptual account (section 2.1.1.1) and then explain the notion of conceptual complexity (section 2.1.1.2), which helps us better understand Dodd and Schnieder's account. They are both examples of the conceptual account (section 2.1.1.3). I will also raise my own objection to the account (section 2.1.1.4).

2.1.1.1 The Conceptual Account: Formulation

The conceptual account is endorsed by (Dodd 2007) and (Schnieder 2006b). It is marked by two characteristics:

(i) its rejection of a genuine dependence relation between truth and reality;

(ii) its conceptual explanation for the intuition that truth depends on reality in an asymmetric way.

I have already talked about (i). Following this rejection of a genuine dependence relation, another critical characteristic (ii) is how the conceptual account explains away the need for such a dependence relation: the intuition of asymmetric dependence is considered to be a result of an asymmetry on the conceptual level, which doesn't require the existence of a genuine dependence relation between truth and reality.

Combining (i) and (ii), we have the following formulation of the conceptual account:

(Conceptual Account) *the intuition of asymmetric dependence between truth and reality is not explained by a genuine dependence relation but rather by an asymmetry of conceptual complexity.*

In what follows, I elaborate on the conceptual account by explaining the notion of conceptual complexity and presenting Dodd's and Schnieder's accounts ((Dodd 2007), (Schnieder 2006a), (Schnieder 2006b)).

2.1.1.2 Conceptual Complexity

Before elaborating on the conceptual account, I explain a core notion of the conceptual account, which is 'conceptual complexity'. It is a notion which describes how complicated the concepts involved in an expression are. One way to measure the conceptual complexity is by appealing to our understanding.[7]

[7]For views on understanding, see (Kim 1994), (Zagzebski 2001), (Kvanvig 2003), (Grimm 2006), and (Grimm 2011).

Dodd (Dodd 2007, 399–400) mentions that 'a is F' is conceptually more complex than '⟨a is F⟩ is true' because understanding the former expression requires more of us than understanding the latter expression. Schnieder (Schnieder 2006b, 23–24) uses a similar method for measuring conceptual complexity: given concepts x and y, if one cannot understand x without understanding y, then x is conceptually more complex than y. For example, if one cannot understand 'John Rawls wants to achieve social justice by positing the veil of ignorance' without understanding 'John Rawls wants to achieve social justice', then the former expression is conceptually more complex than the latter expression.

2.1.1.3 The Conceptual Account: Elaborations

With the explanation on conceptual complexity, I present the concrete content of the conceptual account. There are different theories which can be labelled as a conceptual account, since they both share the same basic insight that the asymmetric interaction between truth and reality is a result of the asymmetry on the conceptual level. I start with Dodd's account (Dodd 2007) and then present Schnieder's account (Schnieder 2006b).

2.1.1.3.1 Dodd's Account

In my view, Dodd's account (Dodd 2007, 398–400) is divided into two steps[8] and with these two steps, the dependence asymmetry is shown to be a conceptual asymmetry (Dodd 2007, 399):

(i) the dependence asymmetry is expressed with the operator 'because' (Dodd 2007, 393,398);

(ii) the operator 'because' signals that what follows it is conceptually more basic than what precedes it (Dodd 2007, 400).

For step (i) (Dodd 2007, 393,398), let's consider the following examples:

(1) ⟨Twitter banned Donald Trump's account⟩ is true because Twitter banned Donald Trump's account.

(2) Twitter banned Donald Trump's account because ⟨Twitter banned Donald Trump's account⟩ is true.

It's plausible that (1) is true and (2) is false. The dependence asymmetry between the truth of the proposition ⟨Twitter banned Donald Trump's account⟩ and the reality is expressed with the help of the operator 'because': the truth of a proposition depends on reality in the sense that the proposition is true because of some feature of the reality or the existence of some entity in reality. As for this example: the truth of ⟨Twitter banned Donald Trump's account⟩ depends on reality in the sense that the proposition is true because Twitter did ban Trump's account in reality. However, the reality that Twitter banned Donald Trump's account was due to his attempts to incite violence in the context of the storming of the US capitol, instead of the truth of the proposition ⟨Twitter banned Donald Trump's account⟩.

Now I move on to step (ii) (Dodd 2007, 400). The operator 'because' signals that what follows it is conceptually more basic than what precedes it. As I have mentioned, Dodd appeals to our understanding to measure conceptual complexity (Dodd 2007, 399–400): if understanding the expression 'a' requires more of us than understanding the expression 'b', then 'a' is conceptually more complex than 'b'.

Given this measurement of conceptual complexity, 'Twitter banned Donald Trump's account' is conceptually more basic than '⟨Twitter banned Donald Trump's account⟩ is true'. The reason is: understanding '⟨Twitter banned Donald Trump's account⟩ is true' requires more of us than understanding 'Twitter banned Donald Trump's account'. To understand the former expression, we need to understand the latter expression and to some degree, the concept of truth.

Given that 'Twitter banned Donald Trump's account' is conceptually more basic than '⟨Twitter banned Donald Trump's account⟩ is true', the example (1) fulfils the requirement that what follows 'because' is conceptually more basic than what precedes it. The example (2) doesn't fulfil this requirement.

[8] The background of Dodd's account is different from the topic of my thesis. Dodd considers the question: whether truth-maker theory can provide truth-makers for negative truths (Dodd 2007, 386–393). Dodd offers a negative answer to the question. Given that, he further considers the motivation behind the truth-maker principle: to capture the asymmetric dependence of truth on reality, or in his terms, 'the groundedness of truth' (Dodd 2007, 393). He offers his conceptual account of the asymmetric dependence and argues that it can be explained without appeal to the truth-maker principle (Dodd 2007, 398–400).

With step (i) and step (ii), the dependence asymmetry is shown to be a conceptual asymmetry in the sense that it is an asymmetry of conceptual complexity: the truth of the proposition ⟨Twitter banned Donald Trump's account⟩ depends on reality in the sense that 'Twitter banned Donald Trump's account' is conceptually more basic than '⟨Twitter banned Donald Trump's account⟩ is true' while reality does not depend on the truth of the proposition ⟨Twitter banned Donald Trump's account⟩ in the sense that '⟨Twitter banned Donald Trump's account⟩ is true' is not conceptually more basic than 'Twitter banned Donald Trump's account'.

In my view, whether Dodd's account is convincing or not depends on whether the claimed function of 'because' is plausible or not. I don't think it is plausible because it is not the case that 'because' always signal that what follows it is conceptually more basic than what precedes it. Consider the proposition ⟨Elon Musk was asked to apologize because he mocked gender pronouns⟩. It's not clear that ⟨he (Elon Musk) mocked gender pronouns⟩ is conceptually more basic than ⟨Elon Musk was asked to apologize⟩. If we follow Dodd (and also Schnieder) and use understanding to measure conceptual complexity, then the conceptual complexity of these two propositions cannot be compared: one can understand ⟨Elon Musk were asked to apologize⟩ without understanding ⟨he (Elon Musk) mocked gender pronouns⟩ and vice versa.

One way out for Dodd is to reply that my counterexample is not about the dependence asymmetry between truth and reality and hence is not a proper counterexample. If we only consider expressions of dependence asymmetry, then the operator 'because' indeed has the claimed function. In other words, to support Dodd's account, it's not required that all uses of the operator 'because' signal that what follows the operator is conceptually more basic than what precedes it. It's only required that some uses of the operator have this function.

In this way, Dodd has divided the uses of 'because' into two groups: the first group are expressions of dependence asymmetry. In this group, 'because' signals that what follows 'because' is conceptually more basic than what precedes it. The second group are other expressions. In this group, 'because' doesn't serve as a signal for conceptual complexity.

I reply by asking what distinguishes the first group from the second group. Dodd might appeal to dependence asymmetry: the reason why 'because' signals conceptual complexity is that it is used in expressions of dependence asymmetry. However, this reply is not plausible because it would presumably make his account circular: the specific function of 'because' (namely, as a signal for conceptual complexity) is used to explain dependence asymmetry, and dependence asymmetry is again used to explain why 'because' has the specific function. Therefore, Dodd needs to offer another explanation for the distinction between the first group and the second group.

In Dodd's paper (Dodd 2007), he doesn't explain why 'because' serves as a signal for conceptual complexity in some expressions. Hence, I turn to Schnieder's account (Schnieder 2006b), which seems to me can better explain the conceptual complexity in expressions of dependence asymmetry.

2.1.1.3.2 Schnieder's Account

Dodd (Dodd 2007) considers the dependence asymmetry to be a conceptual asymmetry. A similar idea is found in (Schnieder 2006b). Schnieder takes the dependence asymmetry to be a special kind of explanation (Schnieder 2006b, 17).[9] Consider this example: ⟨primitive dance in ancient China was associated with shamanic rituals⟩ is true because primitive dance in ancient China was associated with shamanic rituals. According to Schnieder (Schnieder 2006b, 17), this example of dependence asymmetry is an explanation: the explanans 'primitive dance in ancient China was associated with shamanic rituals' explains why ⟨primitive dance in ancient China was associated with shamanic rituals⟩ is true.

The explanations of dependence asymmetry are special because they are what Schnieder calls 'conceptual explanations' (Schnieder 2006b, 14). Schnieder divides explanations into two basic types (Schnieder

[9] Readers who are interested in Schnieder's view on explanations could read (Schnieder 2006b, 13–14). In general, Schnider's position on the notion of explanation is: explanation is 'a piece of information possibly conveyed' in an act of explaining (Schnieder 2006b, 13). Furthermore, this information is equated with propositions, which are expressed by sentences in the form of 'p because a', 'p in virtue of q', etc. Consequently, an explanation is a complex proposition in which one propositional component correctly explains another (Schnieder 2006b, 13).

2006b, 14): causal and conceptual. If a causal and a conceptual explanation show up together in one explanation, then this explanation is a hybrid explanation (Schnieder 2006b, 15).

Causal explanations are those explanations which make use of causal relations, and their orders of explanations are decided by the orders of causal relations (Schnieder 2006b, 15).[10] One example of causal explanation is: the crime scene was burned because the killer set it on fire. This explanation makes use of the causal relation between the killer's act of setting fire and the crime scene's being burned. Furthermore, the order of this causal relation makes it the case that 'the crime scene was burned' is explained by 'the killer set it on fire', but not the other way around.

Conceptual explanations are those explanations which are based on conceptual relations (Schnieder 2006b, 14).[11] According to how they make use of conceptual relations, conceptual explanations are further divided into two different kinds (Schnieder 2006b, 14-15): (1) the explanandum can be directly analysed in terms of the explanans: the explanation is based on the appropriate conceptual analyses of the explanandum's central notions. (2) The explanandum cannot be directly analysed in terms of the explanans. But there is still a certain indirect conceptual connection between the explanandum and the explanans. The conceptual connections involved in the first kind are direct while the conceptual connections involved in the second kind are indirect. An example of (1) is (Schnieder 2006b, 14): Thorsten is my brother-in-law because he is married to my sister. The central notion of the explanandum is 'brother-in-law', and it can be directly analysed in terms of the explanans: a brother-in-law of a person is someone who is married to this person's sister. An example of (2) is (Schnieder 2006b, 14-15): the vase is coloured because it is red. The concept 'coloured' cannot be directly analysed in terms of the concept 'red'. However, in order to understand the concept 'coloured', we do need to understand at least some individual colour concepts (red, green, etc.). It is in this sense that the explanation makes use of an indirect conceptual connection between 'coloured' and 'red'.

As for the orders of conceptual explanations, they are decided by conceptual complexity and primitiveness (Schnieder 2006b, 15): propositions involving complex or elaborated concepts are explained in recourse to more primitive concepts, which may or may not enter into the analyses of the complex concepts directly. According to Schnieder, just like that the order of a causal explanation is decided by an objective causal relation, the order of a conceptual explanation is also decided by an objective conceptual relation (Schnieder 2006b, 14), (Schnieder 2006a, 13–15). The concept 'brother-in-law' is more complex than the concept 'is married to someone's sister' in the sense that the former is analysed by the latter. Therefore, 'Thorsten is my brother-in-law because he is married to my sister' instead of 'Thorsten is married to my sister because he is my brother-in-law' has the proper explanation order.

Schnieder (Schnieder 2006b, 17–19) applies this understanding of conceptual explanations to the explanations of dependence asymmetry. In his words, the explanation of dependence asymmetry is 'an explanation of a proposition employing a logically elaborate concept, the concept expressed by 'true', by a conceptually simpler proposition' (Schnieder 2006b, 18).

The dependence asymmetry is formulated in this way (Schnieder 2006b, 17–18): for all ⟨p⟩: if ⟨p⟩ is true, then ⟨p⟩ is true, because p.[12] Consider this example: ⟨the lockdown in Bavaria was extended again⟩ is true because the lockdown in Bavaria was indeed extended again. There is no direct conceptual analysis between the explanandum and the explanans: the concept 'true' is not directly analysable in terms of the concept 'lockdown' or the concept 'extension' (Schnieder 2006b, 18). However, like the vase example, a certain kind of indirect conceptual relation is involved in this example: the mastery of the concept 'true' is constitutive of the ability to relate an expression of the form '⟨p⟩ is true' to the corresponding expression of the form 'p' (Schnieder 2006b, 18). This is indicated by the propositional version of Tarski's convention T: ⟨p⟩ is true iff p.[13] With regard to the lockdown example, the conceptual connection between the explanandum (the concept 'true' is the central concept of the explanandum) and the explanans consists

[10] Schnieder (Schnieder 2006b) claims that this is not a definition of causal explanations. He merely uses examples to illustrate what causal explanations are (Schnieder 2006b, 145). He makes use of causal relations to argue that the order of explanation in causal explanations is decided by the order of causal relations (Schnieder 2006b, 15).

[11] Be noted that, according to Schnieder, this is not a definition of conceptual explanations, either.

[12] I slightly adjusted the notations. Schnieder's original formulation is (Schnieder 2006b, 17–18): $\forall p$: if it is true that p at all, then it is true that p, because p.

[13] Tarski's convention T is for sentences: for every sentence p, p is true if and only if p.

in: the mastery of the concept 'true' is constitutive of the ability to relate '⟨the lockdown in Bavaria was extended again⟩ is true' to the expression 'the lockdown in Bavaria was extended'.[14] Consequently, the relevant dependence asymmetry is in fact an explanation of the proposition ⟨⟨the lockdown in Bavaria was extended again⟩ is true⟩, by the conceptually simpler proposition, which is ⟨the lockdown in Bavaria was extended again⟩.

Now we return to the problem that I pointed out for Dodd's account (Dodd 2007): what distinguishes the expressions in which 'because' serves as a signal for conceptual complexity from the expressions in which 'because' doesn't have this function? I mentioned that it would be circular to appeal to dependence asymmetry. Schnieder offers a different explanation for the distinction: the reason why 'because' serves as a signal for conceptual complexity in some expressions is that these expressions are expressions of conceptual explanations. As I mentioned, in a conceptual explanation, complex concepts are explained in recourse to more primitive concepts. The operator 'because' in a conceptual explanation signals that what follows it is conceptually less complex than what precedes it. Since Schnieder considers examples of dependence asymmetry to be conceptual explanations, 'because' in examples of dependence asymmetry serves as a signal for conceptual complexity. Consequently, since my counterexample (Elon Musk was asked to apologize because he mocked gender pronouns) is not a conceptual explanation, the fact that 'because' in this example is not a signal for conceptual complexity doesn't undermine the conceptual account.

We have seen that Dodd and Schnieder both take the dependence asymmetry to be a conceptual asymmetry: Dodd (Dodd 2007) sees it as a conceptual asymmetry which is due to the function of the operator 'because'. Schnieder (Schnieder 2006b) sees it as a conceptual asymmetry which is due to the requirement of conceptual explanations.

However, as far as I'm concerned, it's doubtful that the dependence asymmetry is a result of the function of 'because'. If the dependence asymmetry is a result of the function of 'because', then without the operator 'because', there is no dependence asymmetry. But this is not true: the dependence asymmetry can also be expressed without using 'because'. For example, it can be expressed in terms of 'in virtue of': the idea that the truth of ⟨p⟩ depends on reality x can be expressed with '⟨p⟩ is true in virtue of x'. Therefore, even if we don't use the operator 'because' (or even if we don't have the term 'because' in our languages), we can still express the dependence asymmetry by using other expressions (e.g., 'in virtue of', 'for the reason that'). The problem of appealing to the function of 'because' to explain the dependence asymmetry is: it renders it the case that the dependence asymmetry depends on a specific linguistic expression, namely, the operator 'because'. But in fact, dependence asymmetry is not dependent upon one specific way of expression. Consequently, it's not the case that dependence asymmetry is merely a result of the requirement of 'because'.

From my perspective, it's also doubtful that the dependence asymmetry is a result of the requirement of conceptual explanations. Schnieder's account rests almost entirely on insisting that the dependence asymmetry is the same thing as an explanation. If one doesn't find it plausible that the dependence asymmetry is the same thing as an explanation, then one would simply reject his argument. Consider this example: ⟨the sky is dark at night⟩ is true because the sky is dark at night. One might argue that this is not an explanation because the expression 'the sky is dark at night' hardly explains anything about the expression '⟨the sky is dark at night⟩ is true'. If we want to explain why ⟨the sky is dark at night⟩ is true, we need to study physical science. Merely stating that 'the sky is dark at night' doesn't count as an explanation for the truth that the sky is dark at night.

Schnieder might have two replies. The first one is to insist that the dependence asymmetry is an explanation: the reality that the sky is dark at night explains why the relevant proposition is true. In addition, if we want to explain why the sky is dark at night in reality, then we need to study physical science. Hence, we have a chain of explanations: the truth of the proposition is explained by the relevant portion of reality, and the relevant portion of reality (namely, the sky is dark at night) is further explained by physical science. The second reply is to argue that the opponent fails to understand his

[14] (Schnieder 2006b, 18) claims that his explanation is compatible with different theories of truth, except the view that truth is strictly redundant in the sense that '⟨p⟩ is true' and 'p' express one and the same proposition. The reason is that if '⟨p⟩ is true' and 'p' express one and the same proposition, then there is no conceptual differences between these two expressions.

account properly. According to his account, what is explained in this example of dependence asymmetry is not the truth that the sky is dark at night but the concept 'true'. This is indicated by: (1) the central concept of the explanandum '⟨the sky is dark at night⟩ is true' is the concept 'true' rather than the proposition ⟨the sky is dark at night⟩; (2) the indirect conceptual relation involved in this example is also centered on the concept 'true': the mastery of the concept 'true' is constitutive of the ability to relate '⟨the sky is dark at night⟩ is true' to 'the sky is dark at night'. Hence, what is explained in this example is the concept 'true' rather than the truth that the sky is dark at night.

I agree with Schnieder that, *according to his account*, what is explained in dependence asymmetry is the concept 'true'. However, as far as I'm concerned, this is what makes his account counterintuitive. It's counterintuitive to take 'true' as the central concept of the explanandum, and it seems unlikely that the dependence asymmetry is about the concept 'true'. If we want to explain the concept 'true', we might say something like this instead: the concept 'true' applies to ⟨the sky is dark at night⟩ because the sky is drak at night. The dependence asymmetry '⟨the sky is dark at night⟩ is true because the sky is dark at night' *can* be seen as an explanation for the concept 'true', but it's more natural to see it as an explanation for the truth that the sky is dark at night. Furthermore, if the dependence asymmetry is taken as an explanation for the truth that the sky is dark at night, then the central concept of the explanandum shouldn't be merely the concept 'true'. It's more likely that both the proposition ⟨the sky is dark at night⟩ and the concept 'true' are central in the explanandum. In other words, Schnieder's account faces a dilemma: if the dependence asymmetry is an explanation for the truth that the sky is dark at night, then the central concept of the explanandum is not merely the concept 'true', which is in contrast to Schnieder's account; if the central concept of the explanandum is the concept 'true', then the dependence asymmetry is an explanation for the concept 'true', which is counterintuitive.

Schnieder might be willing to modify his account, and take both the proposition ⟨the sky is dark at night⟩ and the concept 'true' as central expressions in the explanandum. In this way, the dependence asymmetry is a conceptual explanation for the truth that the sky is dark at night. However, if he modifies his account and take both the proposition and the concept 'true' as central expressions, then the conceptual relation involved here should also be modified. According to his original account, the conceptual relation is an indirect conceptual relation which is centered on the concept 'true': the mastery of the concept 'true' is constitutive of the ability to relate an expression of the form '⟨p⟩ is true' to the corresponding expression of the form 'p' (Schnieder 2006b, 18). It's hard to see how the conceptual relation can be modified so that the conceptual explanation is an explanation for the truth that the sky is dark at night instead of the concept 'true'.

2.1.1.4 The Conceptual Account: My General Objection

After presenting two examples of the conceptual account and pointing out the difficulties they face, in this section I raise my general objection to the conceptual account. I don't find the conceptual account of dependence asymmetry convincing. From my perspective, the conceptual account is in direct conflict with the intuition behind the dependence asymmetry, which indicates a kind of metaphysical dependence. The intuition behind the dependence asymmetry is: it is due to what happens in reality that some proposition is true while it is not due to the truth of some proposition that something happens in reality. This intuition indicates a kind of metaphysical dependence in the sense that the truth of propositions depends metaphysically on what happens in reality. In addition, the intuition might also indicate a kind of metaphysical priority in the sense that what happens in reality is metaphysically prior to the truth of propositions.

There are two reasons why I am not convinced by the conceptual account:

(1) the priority involved in the conceptual account is different from the priority involved in the dependence asymmetry.

The intuition of dependence asymmetry indicates a kind of metaphysical priority while the conceptual explanation involves another kind of priority, which is the priority of understanding. When I introduced Dodd and Schnieder's account (Dodd 2007; Schnieder 2006b), I mentioned that both accounts appeal to understanding to measure conceptual complexity. If we cannot understand A without understanding B, namely, if our understanding of B is prior to our understanding of A, then A is conceptually more complex than B. However, the priority in understanding is different from the priority in metaphysics.

For example, it's plausible that the existence of an apple tree is metaphysically prior to the existence of an apple on the tree. But when we consider the concept 'apple' and the concept 'apple tree', it seems to be more plausible that the understanding of the concept 'apple' is prior to the understanding of the concept 'apple tree'.

A possible rebuttal[15] would be: granted that conceptual priority is different from metaphysical priority, but why dependence asymmetry involves metaphysical priority instead of conceptual priority? I reply: the fact that there are cases of dependence asymmetry which don't involve conceptual priority shows that dependence asymmetry is rather about metaphysical priority. This is shown by the example in (2) in the following.

(2) the dependence asymmetry and the conceptual asymmetry (asymmetry of conceptual complexity) are not one and the same thing.

The dependence asymmetry indicates a kind of metaphysical dependence, which is different from the conceptual dependence indicated by the asymmetry of conceptual complexity.[16] The metaphysical dependence is about the dependence of one kind of entities on another kind of entities[17] while conceptual dependence is about our understanding. Jonathan Schaffer (Schaffer 2008, 309) expresses a similar idea when he distinguishes 'ontological grounding' from 'conceptual analysability'. For him, ontological grounding concerns 'dependences among things in the world' (Schaffer 2008, 309) while conceptual analysability concerns 'definitions among ideas in the mind' (Schaffer 2008, 309).

Furthermore, with the help of the following concrete example, we can see that the dependence asymmetry and the conceptual asymmetry (asymmetry of conceptual complexity) depart from each other in some cases, which indicates that they are not one and the same thing:

(1) ⟨oxygen is an oxidizing agent⟩ is true because oxygen gains electrons in a chemical reaction.

(2) oxygen gains electrons in a chemical reaction because ⟨oxygen is an oxidizing agent⟩ is true.

It is plausible that (1) is true and (2) is false. (1) is true because the reason why the proposition ⟨oxygen is an oxidizing agent⟩ is true is that oxygen is an oxidizing agent. The reason why oxygen is an oxidizing agent is that it gains electrons in a chemical reaction. Therefore, it is also convincing to say that the reason why the proposition ⟨oxygen is an oxidizing agent⟩ is true is that oxygen gains electrons in a chemical reaction. (2) is false because the reason why oxygen gains electrons in a chemical reaction is not the truth of some proposition but rather the chemical structure of the oxygen itself. Oxygen has six electrons in its outer shell and therefore it gains two electrons in chemical reactions in order to have a full outer shell, which is the octet rule.

Therefore, we have a dependence asymmetry, which is the asymmetric dependence of the truth of the proposition ⟨oxygen is an oxidizing agent⟩ on oxygen's receiving electrons in a chemical reaction. However, we don't have a corresponding conceptual asymmetry: in (1) what follows 'because' is clearly

[15] I thank Dr. Neil Dewar for making this rebuttal at the BA/MA Colloquium MCMP.

[16] Here I object that the conceptual account involves a confusion of metaphysical dependence and conceptual dependence. Be noted that in another paper Schnieder (Schnieder 2006a, 12–13) notices a problem which might initially appear to be the same as my objection: he deals with the objection that his notion of explanation involves a confusion of metaphysics and epistemology. Schnieder argues that his notion does not confuse metaphysics and epistemology by making a distinction between subjective and objective notions of explanation (Schnieder 2006a, 13–15): subjective explanations are indeed relative to the epistemic status of a given epistemic subject (Schnieder 2006a, 13). For example, if some explanation is out of person A's intellectual capacity, then although this explanation does explain something to person B, it might not explain anything to person A (Schnieder 2006a, 13). But there are also objective explanations which are not constrained epistemically. One kind of objective explanations are causal explanations. Causal explanations are supported by objective causal relations, which are independent from the epistemic status of a given subject (Schnieder 2006a, 13). Another kind of objective explanations are those conceptual explanations which make use of objective conceptual relations (Schnieder 2006a, 13–15).

It's worth mentioning that my objection is not based on the confusion of metaphysics and epistemology but rather on the confusion of dependence on the metaphysical level and dependence on the conceptual level. Consequently, even if Schnieder's objective conceptual explanations are indeed independent from a given subject's epistemic status, the conceptual relations which back these explanations are still different from the metaphysical dependence relations.

[17] It could be argued that true propositions are portions of reality. In this way, saying that the truth of propositions metaphysically depends on what happens in reality is the same as saying that some portions of reality (the portion of true propositions) metaphysically depend on other portions of reality.

not conceptually more basic than what precedes it. But if the dependence asymmetry and the conceptual asymmetry are one and the same thing, then what follows 'because' in (1) should be conceptually more basic than what precedes it. Here we have a case where dependence asymmetry and conceptual asymmetry depart from each other.

One possible rebuttal would be: it's not unlikely that what follows 'because' in (1) is conceptually more basic than what precedes it. What precedes 'because', namely, the term 'oxidizing agent', is not a basic concept. 'Oxidizing agent' is a technical term, and it could be argued that the expression 'oxygen gains electrons in a chemical reaction' offers an explanation for this technical term. Hence, it could also be argued that 'oxidizing agent' is conceptually more complex than 'oxygen gains electrons in a chemical reaction', and we do have a corresponding conceptual asymmetry. To this rebuttal, I reply: even if the expression 'oxygen gains electrons in a chemical reaction' does offer an explanation for the technical term 'oxidizing agent', it doesn't mean that 'oxidizing agent' is conceptually more complex than 'oxygen gains electrons in a chemical reaction'. In order to argue that term A is conceptually more complex than term B, it's not enough that term B offers *an* explanation for term A. We need a stronger condition, which is that term B offers *the* explanation for term A. For example, the term 'apple' is explained by the expression 'an edible fruit produced by an apple tree'. However, it seems unlikely that 'apple' is conceptually more complex than 'an edible fruit produced by an apple tree'. We can also explain the term 'apple' by pointing at an apple. If the only way to understand the term 'apple' is by understanding the expression 'an edible fruit produced by an apple tree', then it might be that the term 'apple' is conceptually more complex than the expression. As for the oxygen example, 'oxygen gains electrons in a chemical reaction' merely offers *an* explanation instead of *the* explanation for the technical term 'oxidizing agent'. There are other ways to explain the technical term: for example, an oxidizing agent is a substance which undergoes reduction in a redox reaction; students can understand what is an oxidizing agent by performing chemical experiments. If the only way to understand the technical term 'oxidizing agent' is by understanding the expression 'oxygen gains electrons in a chemical reaction', then the technical term is conceptually more complex than the expression. However, since there are other explanations which also explain the technical term, then it must not be the case that 'oxidizing agent' is conceptually more complex than the expression. It might be that, with regard to conceptual complexity, they cannot be compared.

One might further object that, since 'apple' is not a technical term, my example is not proper. In contrast to non-technical term, a technical term can have only one explanation. Therefore, if a technical term A is explained by B, then A is conceptually more complex than B. However, I don't agree that a technical term can have only one explanation. Consider the technical term 'elementary particle'. There are two different ways to explain this technical term. One way is to say that elementary particles are 'subatomic particles which are not composed of other particles'. Another way is to list all elementary particles: elementary particles include, according to the standard model of particle physics, elementary fermions and elementary bosons. Consider the technical term 'atom'. It can be explained as 'the smallest unit of ordinary matter that forms a chemical element'. It can also be explained in a different way (Bettini 2014, 23): atoms are made of electrons and nuclei bound by the electromagnetic force, whose quantum is the photon. Consequently, technical terms also allow more than one explanation.

In addition, the oxygen example also replies to the rebuttal in (1): this is an example of dependence asymmetry which doesn't involve a corresponding conceptual priority: one is able to understand that ⟨oxygen is an oxidizing agent⟩ is true (for example, by seeing that with oxygen the candles are lit) without understanding the concept 'electron'. Hence, the dependence asymmetry involves metaphysical priority instead of conceptual priority.

2.1.2 The Semantic Mechanism Account

In section 2.1.1 I introduced the first account in the N group, which is the conceptual account. In this section I will present the second account in the N group, which is the semantic mechanism account. This account is endorsed by (Audi 2020) and (MacBride 2014). Although Audi and MacBride have different views on the semantic mechanism, what they roughly mean is the mechanism with which a sentence or a proposition gets to be true or false. Similar as the conceptual account, the semantic mechanism account also maintains that there is no genuine dependence relation between truth and reality. The difference is,

instead of seeing dependence asymmetry as an asymmetry on the conceptual level, it makes use of the semantic mechanism to explain the dependence asymmetry.

I will firstly formulate the general idea of the semantic mechanism account (section 2.1.2.1). After that, I introduce Audi's and MacBride's accounts (section 2.1.2.2). At the end, I state my view on the semantic mechanism account (section 2.1.2.3).

2.1.2.1 The Semantic Mechanism Account: Formulation

The semantic mechanism is endorsed by (Audi 2020) and (MacBride 2014). It is marked by two characteristics:

(i) its rejection of a genuine dependence relation between truth and reality;

(ii) the use of semantic mechanism to explain the intuition that truth depends on reality in an asymmetric way.

I have already talked about *(i)*. Following this rejection of a genuine dependence relation, another critical characteristic *(ii)* of the semantic mechanism account is how it explains away the seeming need for such a dependence relation: the intuition of asymmetric dependence is considered to be a result of the semantic mechanism, which doesn't require the existence of a genuine dependence relation between truth and reality.

Combining *(i)* and *(ii)*, we have the formulation of the semantic mechanism account:

(Semantic Mechanism Account) *the intuition of asymmetric dependence between truth and reality is not explained by a genuine dependence relation but rather by the semantic mechanism.*

In the following I elaborate on the formulation by presenting Audi's and MacBride's accounts (Audi 2020; MacBride 2014).

2.1.2.2 The Semantic Mechanism Account: Elaborations

2.1.2.2.1 Audi's Account

Consider the example: ⟨Ted Bundy killed 30 people⟩ is true because Ted Bundy killed 30 people. For simplicity's sake, suppose that there exists such a fact [Ted Bundy killed 30 people],[18] and this fact makes the relevant proposition true. According to Audi (Audi 2020, 17), in order to explain how the fact makes the proposition true, we only need to appeal to the semantic mechanism of the proposition.[19] There is no need for any further relation between the fact and the proposition.

The key point of Audi's view is (Audi 2020, 17): the truth of a proposition is just the holding of two conditions:

(1) the proposition's saying that such-and-such's being the case;

(2) the obtaining of a fact that counts as such-and-such's being the case.

In our example, in order for ⟨Ted Bundy killed 30 people⟩ to be true, only two conditions need to be fulfilled: (1) the proposition's saying that Ted Bundy killed 30 people; (2) the obtaining of the fact [Ted Bundy killed 30 people]. There is no need for a dependence relation which connects (1) and (2).[20] Audi uses an analogy to illustrate this point (Audi 2020, 17): suppose we have two lines l and m. l is 1 inch long and m is 2 inches long. In this way, line m is longer than line l. But 'longer than' is not a genuine relation, since the lengths of these two lines will settle whether or not one of them is longer than

[18] I use square brackets for facts.

[19] It is not clear what the semantic mechanism that Audi has in mind is. He doesn't elaborate on this point. He mentions that the only thing he needs to assume about propositions is that they have 'semantic features that result in a claim about how things are' (Audi 2020, 8) and that 'the mechanism through which a proposition gets to be true is its own semantic character' (Audi 2020, 9). Unlike MacBride's account (MacBride 2014) that I will present later, Audi doesn't specify the 'semantic character' that he has in mind.

[20] Be noted that (1) might involve some kind of relation (Audi 2020, 17). If we adopt a causal theory of reference, then a proposition's saying such-and-such's being the case might involve reference, which is in part a causal relation (Audi 2020, 19). Audi's point is that although (1) might involve some kind of relation, it doesn't involve a genuine dependence relation between truth and reality.

For views which hold that reference is not a genuine relation, see (Michaelson and Reimer 2019, 38–42); for views which maintain that reference is a genuine relation but not a causal one, see (Michaelson and Reimer 2019, 35–38).

another. In the same vein, just like there is no genuine relation of 'longer than', there is no dependence relation between the true proposition ⟨Ted Bundy killed 30 people⟩ and the relevant fact. The obtaining of the fact and the proposition's saying that Ted Bundy killed 30 people will make it the case that the proposition is true.

Furthermore, if we consider the situation where the proposition ⟨Ted Bundy killed 30 people⟩ is false, we can see that there is no dependence relation involved either (Audi 2020, 17). Suppose that Ted Bundy in fact killed more than 30 people, and he only confessed to 30 of them. When the proposition is false, (1) still holds and (2) doesn't hold. The proposition still says that Ted Bundy killed 30 people. It is false because the fact [Ted Bundy killed 30 people] doesn't obtain. He actually killed more than 30 people.

To sum up, Audi's argument is that, since the truth of a proposition is just the holding of two conditions and none of them requires a dependence relation between truth and reality, no dependence relation is needed to explain how reality makes true proposition.[21]

As far as I'm concerned, Audi's argument is not quite forceful because he fails to take dynamic situations into account. The constraint on truth by reality manifests itself in cases where the truth (or falsity) of a proposition changes as reality changes. For example, capital punishment used to be a legal penalty in the Philippines, but it was abolished in 2006. Before 2006, the proposition ⟨capital punishment is legal in the Philippines⟩ was true and after 2006, it is false. This example shows a dynamic situation where the truth-value of a proposition changes as reality changes. Even if the static truth (or falsity) of a proposition is only the holding of the two conditions that Audi (Audi 2020) mentions, changes of truth-values cannot be merely explained by these two conditions. I consider these two conditions in order. Condition (1) cannot explain changes of truth-values because it is not affected even if the truth-value of a proposition changes. The proposition still says the same thing. Condition (2) cannot explain the changes of truth-values even if it is affected if the truth-value of a proposition changes. Suppose that the fact [capital punishment is legal in the Philippines] made true the proposition ⟨capital punishment is legal in the Philippines⟩. It obtained when the proposition was true, but it doesn't obtain anymore when the proposition is false. However, the changes of the status of the fact cannot explain the changes of truth-values. Whether a fact obtains or not is just something happens in reality. What is missing is how these changes of the fact lead to changes of truth-values. Postulating a dependence relation is one way to explain it. It might not be the only way. But at the very least, I have shown that Audi's argument is not sound, and we do need more than the two conditions to explain how reality makes true propositions.

Audi merely considers the static status of a proposition's being true or false. If we only consider the static status of a proposition (be it true or false), it is easy to miss the interaction between truth and reality. But if we consider the dynamic situations where a true proposition becomes false (or a false proposition becomes true) because the relevant reality changes, then we would better appreciate the importance of the interaction.[22] Furthermore, we might also be more convinced of the need for a dependence relation to account for the interaction.

However, Audi might adjust the semantic mechanism and take contextual factors into account. For example, he might include time and space of utterance in his account, and in this way, his account

[21] Audi's argument is related to the idea of what we call 'internal relations' and there are debates in the literature on whether we need to postulate internal relations or not. Interested readers are referred to (MacBride 2020a, 17–28) for a summary of the debates. I don't address the debates here because I believe Audi's argument can be rejected without addressing the issue of the existence of internal relations. I will present my objection later.

There are different definitions on internal relations (for a summary of the definitions, see (MacBride 2020a, 8–10). According to a definition favoured by Armstrong (Armstrong 1997, 87), a relation between a and b is internal if and only if its holding between a and b is necessitated by the non-relational properties of a and b. For example, the relation of longer than is an internal relation because its holding between line l and m is necessitated by the lengths of these two lines. The length of a line is its non-relation property because a line has this property without standing in relation to other entities.

[22] There are cases in life where the interaction between truth and reality matters more than just the truth or the reality. For example, perjury is considered a serious offense. The reason is that, if a witness lies about what really happens, it might lead to a wrongful verdict. Compared to the truth (or falsity) and the reality, what matters more here is whether the witness's statements are based on what in fact happens or not. The court wants to make sure that her statements are based on reality so that the jury can give a proper verdict.

can explain the dynamic situations. What's more, this adjustment is natural because it's standard for semantics to take contextual factors into account. I will try to adjust his account so that it can also account for the dynamics situations. As I mentioned, his account has two conditions (Audi 2020, 17): (1) the proposition's saying that such-and such's being the case, and (2) the obtaining of a fact that counts as such-and-such's being the case. I modify the condition (2) and add to it an additional element, which is the circumstance of evaluation. The circumstance of evaluation is the state of the world relevant to the determination of the truth-value of a proposition (Speaks 2021, 17).[23] According to Kaplan (Kaplan 1989, 501), if a proposition is evaluated at a circumstance of evaluation, the result of the evaluation is a truth-value. Consider the above example of capital punishment. The proposition ⟨capital punishment is legal in the Philippines⟩ is evaluated at two different circumstances: one of the circumstances is the state of the world before 2006, and another one is the state of the world after 2006. The proposition has two different truth-values with respect to these two different circumstances: it is true when evaluated at the former circumstance, and it is false when evaluated at the latter circumstance. Now Audi's account becomes: the truth of a proposition is the holding of two conditions:

(1) the proposition's saying that such-and-such's being the case;

(2) the proposition is evaluated at a circumstance where a fact that counts as such-and-such's being the case obtains.*

Now (2*) can explain changes of a proposition's truth-value by including its circumstances of evaluation. In the example of capital punishment, the reason why the proposition's truth-value changes from truth to falsity is that its circumstance of evaluation changes from the state of the world before 2006 to the state of the world after 2006, and the fact [capital punishment is legal in the Philippines] obtains at the former circumstance of evaluation but doesn't obtain at the latter one. Consequently, with the adjusted conditions, Audi's account can explain the dynamic situations.

I think the adjusted account is convincing, and I will argue later that, although the adjusted account can explain truth's dependence on reality, it cannot offer a positive explanation for the lack of dependence from reality to truth. In this way, if there is an account which can also offer a positive explanation for the lack of dependence from reality to truth, then according to the weaking reading, this account is better than Audi's account. Having presented Audi's account, Now I turn to MacBride's account.

2.1.2.2.2 MacBride's Account

In general, MacBride's account applies to sentences.[24] Roughly speaking, truth depends on reality in the following way: words in a sentence stand in certain relations to things in the world. Things in the world play a certain role in the semantic mechanism, which determines the truth-value of the sentence (MacBride 2014, 375).

The 'semantic mechanism' that MacBride has in mind (MacBride 2014, 375,377) is a part of the classical semantic theory.[25] In a classical semantic theory,[26] notions of reference and satisfaction are used to determine the truth-value of a sentence.[27] Consider the example 'the moon is full'. The term 'the moon' refers to an object, which is the moon in the sky. The predicate 'is full' refers to a property, which is the property of being full. If the moon in the sky does have the property of being full, then the sentence 'the moon is full' is true (or, if the moon in the sky does satisfy the predicate 'is full' (MacBride

[23] For discussions on circumstances of evaluation, see (Kaplan 1989) and (Speaks 2021, 15-19).

[24] MacBride claims that his idea can be applied to both sentences and propositions without having a specific view of propositions (MacBride 2014, 375). I later will show that his idea cannot be applied to propositions.

[25] For a general introduction to theories of meaning, see (Speaks 2021).

[26] Examples of non-classical semantic theories are: Davidsonian semantics, inferentialist semantics, etc. For Davidsonian semantics, see (Davidson 1967); for a defence of inferentialist semantics, see (Brandom 1994).

[27] This is not to say, non-classical semantic theories don't use the notions of reference and satisfaction to determine truth-values. There are different approaches within the group of non-classical semantic theories. Inferentialist semantics adopts a holistic approach to semantics: the meaning of an individual sentence consists in its inferential relations with other sentences; the truth-value of a sentence depends on whether it is part of a good inference or is part of a bad inference. Davidsonian semantics, although it opposes the idea of assigning entities as meanings to sentences (e.g., Russellian propositions, Frege's thoughts and intensions defined as functions from possible worlds to truth-values), it still uses notions of reference and satisfaction to determine the truth-value of a sentence.

2014, 375–376)). In other words, the truth or falsity of the expression turns upon how the moon in reality is.

This is how MacBride's account explains the dependence of truth on reality. A further question is: how it explains the asymmetric characteristic of the dependence? MacBride claims (MacBride 2014, 377) that his account can show that the dependence between truth and reality is one-way. The crux of his argument is to say that what happens in reality has already played a role in determining the truth-value of the corresponding sentence (MacBride 2014, 377). For example, the status of the moon in the sky has already, via the semantic mechanism mentioned above, determined the truth or falsity of the relevant sentence. If 'the moon is full' is true, the status of the moon's being full has already been assumed by the truth of the sentence. If the sentence is false, the status of the moon's not being full has also already been assumed by the falsity of the sentence (MacBride 2014, 377). We are able to learn about the status of the moon from the truth or falsity of the relevant sentence because we are just 'unpacking the information that was already packed in' (MacBride 2014, 377). From MacBride's standpoint, if the relevant reality has already been assumed by the truth-value of the sentence, then it can't be the case that reality also depends on truth.

I am not quite sure that his argument is sound. MacBride wants to show that the dependence between truth and reality is one-way by showing that reality has already performed a role in determining truth. However, it is not clear why the fact that reality has performed a role in determining truth can lead us to the conclusion that reality doesn't depend on truth. After all, there are interdependent cases where two things help determine each other. The right hand performs a role in making another hand the left hand. But this doesn't mean that the left hand doesn't perform a role in making the right hand the right hand. Furthermore, if what MacBride suggest is rather, if reality has already performed a role in determining truth, then reality must come before truth and hence cannot be dependent upon truth, then he seems to mistake dependence for priority. Priority is asymmetric: if a is prior to b, then b is not prior to a. But dependence can be symmetric: if a is dependent upon b, b can also be dependent upon a.[28]

2.1.2.3 The Semantic Mechanism Account: My View

In general, I think the semantic mechanism account is a reasonable account to capture truth's dependence on reality, despite a minor problem that I will mention later. However, it is doubtful that it can offer a positive explanation for the asymmetric characteristic. As I have mentioned, simply saying that the lack of semantic mechanism from the other direction is why reality doesn't depend on truth is not a positive explanation.

According to the strong reading in my research framework (section 1.3), the semantic mechanism account is a proper account only when it can offer a positive explanation for the asymmetric characteristic. Hence, it is not (yet) a proper account. According to the weak reading, when there is another account which can offer positive explanations for both **(truth-reality dependence)** and **(asymmetry)**, it is a better account than the semantic mechanism account.

In what follows, I will point out one problem of MacBride's account: the account doesn't apply to propositions. On the sentential level, reference is between a sentence and its truth-value. However, it is hard to see what the referent of a proposition should be. Afterall, a proposition is usually considered as the meaning of a sentence. Consider the sentence 'Ted Bundy is a serial killer'. The reference of this sentence is its truth-value, and the meaning of this sentence is the proposition ⟨Ted Bundy is a serial killer⟩. On the sub-sentential level, reference is between a term and its referent. For example, the term 'Ted Bundy' refers to the person who was a serial killer. However, it is also not clear what the referents of a proposition's constituents should be.

Since what the constituents of a proposition are depends on our views on propositions, I consider

[28] One might object that, the distinction between dependence and priority is in tension with my general objection (1) to the conceptual account (section 2.1.1.4). However, in objection (1), I merely stated that the intuition of dependence asymmetry *might* indicate a kind of metaphysical priority. If it turns out that dependence asymmetry doesn't indicate a kind of metaphysical priority, then objection (1) is not a proper objection to the conceptual account. But objection (2) is still a proper objection, and my general objection to the conceptual account is still valid.

two traditional views on the nature of propositions[29] and show that, contrary to what MacBride claims (MacBride 2014, 375), his account doesn't work if propositions are taken as truth-bearers.

Two traditional views on propositions are Fregean propositions and Russellian propositions. Fregean propositions are structured entities with constituents which are the senses of sub-sentential expressions making up the sentence (Speaks 2021, 27). Frege distinguishes 'senses' from 'references'. Senses are modes of presentations, which determine references of expressions (Speaks 2021, 27,31). One classic example involves the terms 'the morning star' and 'the evening star' (Frege 1892, 32). They both refer to the same object, which is the planet Venus. However, they are considered to present the same object in different ways. Consequently, they have the same reference but different senses. The sense of a sentence is a proposition, which Frege calls 'thought' (Frege 1892, 32). The reference of a sentence is its truth-value (Frege 1892, 34–35).

In contrast to Fregean propositions, which consist of senses, Russellian propositions have individuals and relations as constituents of propositions. The constituents are connected together and yield a complex structured entity, which is the proposition (King 2018, 311–313). Following Russell, the neo-Russellian view of propositions takes propositions to be structured entities with individuals, properties, and relations as constituents (King 2018, 319).[30]

No matter we adopt the Fregean view of propositions or the (neo-)Russellian view of propositions, propositions don't have the semantic mechanism that MacBride needs in order to explain why the truth of propositions depends on reality. For Fregean propositions, their constituents are the senses of sub-sentential expressions. Senses are different ways to present an object. The sense of an expression determines what thing in the world the expression stands for.[31] It is the expression itself, instead of its sense, which refers to the thing in the world. For (neo-)Russellian propositions, propositions have individuals, properties and relations as constituents, which are entities in the external physical world. They serve as referents, but they don't refer to anything. However, if propositions are taken to be truth-bearers, the constituents of a proposition need to be able to refer to something. Reference is a semantic characteristic. It's hard to see how an individual, as a *prima facie* non-semantic entity in the external physical world, has the ability to refer to something.[32] Consequently, if MacBride wants to use the semantic mechanism to explain the dependence asymmetry, either he needs to merely take sentences as truth-bearers, or he needs to explain in a different way how the truth of propositions is dependent upon reality.

[29] For concrete introductions on views of propositions, see (King 2018), (King 2017), (McGrath and Frank 2020). To understand propositions in the broader context of theories of meaning, see (Speaks 2021). For examples of more recent theories of propositions, see (King 2007), (King et al. 2014), (Hanks 2015).

[30] For brief explanations on individuals, properties, and relations, readers can see the glossary of the thesis.

[31] See (King 2019, 40–42) for a concrete explanation on Frege's senses.

[32] One might object that, entities in the external physical world might also have semantic characteristics. According to (Casati et al. 1999, 187), 'some spatial entities represent other spatial entities: they have a semantics'. For example, maps, as spatial entities, represent other spatial entities (e.g., cities) and have a semantics (Casati et al. 1999, 187-196). To this I reply that if that is the case, MacBride's account should be supplemented by an explanation on how constituents of a (neo-)Russellian proposition refer to something, and what they refer to. Consider the proposition ⟨Laozi was a Chinese philosopher⟩. According to the (neo-)Russellian view of propositions, presumably the proposition has the individual Laozi has a constituent. MacBride's account should explain how the individual Laozi refers to something, and what the individual refers to. If it refers to itself, namely, Laozi, then it should be explained why the individual can be both the referent and the thing that refers to the referent.

2.2 The Y Group

After presenting theories that deny a genuine dependence relation between truth and reality. In section 2.2 I introduce another group of theories. Contrary to theories in the N group, theories in the Y group accept a genuine dependence relation between truth and reality. They are different in how they explain the dependence relation.

This section is organized as follows. In section 2.2.1 I introduce the supervenience account, which takes the relation between truth and reality as a supervenience relation. I start with an explanation of the account and then point out its problem.

In section 2.2.2 I present the truth-maker theory. I start with different ways to define a truth-maker (section 2.2.2.1) and then connect the truth-maker theory to dependence asymmetry (section 2.2.2.2). In section 2.2.2.2.1, I present Horwich's explanatory deduction account, which uses the truth-maker theory to capture the dependence asymmetry. After that, I consider the general plausibility of using the truth-maker theory to capture the dependence asymmetry (section 2.2.2.2.2), especially from the perspective of asymmetry (section 2.2.2.2.3).

In section 2.2.3 I introduce the grounding account. I start with the notion of grounding (section 2.2.3.1) and then consider 3 different understandings of the relation between truthmaking and grounding (section 2.2.3.2). At the end, I conclude that it's plausible to consider truthmaking as a species of grounding (section 2.2.3.2.3).

2.2.1 The Supervenience Account

To reiterate: N group and Y group offer two different answers to the question of the thesis, namely, how to account for the intuition of asymmetric dependence between truth and reality? N group holds the view that there is *no* genuine dependence relation between truth and reality while Y group maintains that there is a genuine dependence relation between truth and reality.

The first account in Y group is the supervenience account. The idea of supervenience can be roughly explained in a slogan (McLaughlin and Bennett 2018): if A supervenes on B, then 'there cannot be an A-difference without a B-difference'. For example, according to a supervenience-based formulation of physicalism (Wilson 2005, 426), all entities are nothing over and above physical entities in the sense that they supervene on the physical entities. Non-physical entities supervene on the physical entities in the sense that entities with the same physical properties must have the same non-physical properties (Wilson 2005, 435). In other words, if non-physical entities supervene on the physical entities, then for the non-physical entities, differences in their non-physical properties require differences in their physical properties.

The supervenience account maintains that we should use supervenience to account for the dependence of truth on reality. It states that truth depends on reality in the sense that truth supervenes upon whether things are and how things are in reality, which means that there cannot be differences in truth without differences in reality. If we use possible worlds to cash out the idea of 'differences in reality', the supervenience of truth on reality renders it the case that if a proposition is true in one possible world but not another, then there must be some difference between these two possible worlds, otherwise there cannot be any difference in truth. I use the account of David Lewis[33] (Lewis 2001) as an example.[34] The supervenience account could be expressed in the following way (Lewis 2001, 612):

(sup) *for any proposition p and any [possible] worlds w and v, if p is true in w but not in v, then either something exists in one of the worlds but not in the other, or else some n-tuple of things stands in some fundamental relation in one of the worlds but not in the other.*[35]

In this way, we could explain that ⟨the rose is red⟩ is true because the rose is red. The explanation goes like this: for the proposition ⟨the rose is red⟩ and any possible worlds w and v, ⟨the rose is red⟩ is

[33] Interested readers might want to read the whole paper to see how Lewis (Lewis 2001) develops this supervenience account from the basic idea that what is true depends on 'the way the world of existing things is, or on the way some part of that world is' (Lewis 2001, 603). For some comments on Lewis' paper, readers can see (MacBride 2005, 119–123).

[34] For a different formulation of the idea that truth supervenes on being, see (Dodd 2002, 73).

[35] Square brackets and the text inside are added by me.

true in w but not in v because either the rose exists in the world w but not in the world v, or else the rose instantiates the property of being red in the world w but not in the world v.

So far so good. However, an important characteristic of supervenience makes it unable to account for the asymmetric dependence: supervenience might go both ways and therefore cannot capture the asymmetric characteristic of the dependence.[36] Let us consider the other direction of the rose example: the rose is red because ⟨the rose is red⟩ is true. (sup) cannot be used directly, but since the key concept of (sup) is supervenience, it can be adjusted to account for the dependence of the reality that the rose is red on the truth of the relevant proposition.

The adjusted account states that whether things are and how things are in reality depend on truth. It could be expressed in the following way:

(contra-sup) *for any proposition p and any possible worlds w and v, if either something exists in w but not in v, or else some n-tuple of things stands in some relation in w but not in v, then p is true in w but not in v.*

Therefore, the other direction could be explained in the following way: for the proposition ⟨the rose is red⟩ and any possible worlds w and v, ⟨the rose is red⟩ is true in w but not in v because either the rose exists in the world w but not in the world v, or the rose instantiates the property of being red in the world w but not in the world v.

One might object that, even if it's possible to formulate (contra-sup) and account for the dependence of reality on truth, why one cannot simply reject (contra-sup) and only accept (sup)? After all, the possibility of formulating (contra-sup) doesn't warrant that (contra-sup) should be accepted. I reply that there are no grounds for rejecting (contra-sup). Possible grounds for rejecting (contra-sup) are: (1) the notion of supervenience; (2) the intuition that reality doesn't depend on truth. I will consider them in order, and show that neither of them is sufficient to reject (contra-sup).

(1) the notion of supervenience. The notion of supervenience cannot be directly used to reject (contra-sup) because, arguably, supervenience is neither symmetric nor asymmetric: it is non-symmetric (McLaughlin and Bennett 2018, 9-10).[37] In some cases, supervenience is symmetric. For example, supervenience is reflexive (Kim 1984, 166), and hence it is trivially symmetric: for a property A, there cannot be a difference in A without a difference in A. In some cases, supervenience is argued to be asymmetric. For example, writers who want to use supervenience to formulate physicalism would presumably argue that supervenience is asymmetric: the mental phenomena supervene on the physical phenomena but not the other way around.[38] Given this asymmetric case of supervenience, one might argue that the case of physicalism is similar to the case of dependence asymmetry, and hence we treat dependence asymmetry in a similar way: truth supervenes on reality but not the other way around. In this way, (contra-sup) is rejected. Granted that we can reject (contra-sup) in this way, another problem arises: supervenience is reflexive, which leads to a problematic result, namely, truth supervenes on itself. Consequently, if we use supervenience to account for the dependence of truth on reality, although it can explain the asymmetric characteristic of the dependence relation, the reflexivity of supervenience leads to a problematic result: truth also supervenes on itself, instead of merely on the reality. We can see that, a non-symmetric relation cannot account for the dependence asymmetry properly, we need a relation which is asymmetric (and hence also irreflexive). One might further object that, even if the notion of supervenience cannot be directly used to reject (contra-sup) (since it has a problematic consequence), we can appeal to the intuition that reality doesn't depend on truth to reject (contra-sup). Now I turn to this possibility.

(2) the intuition that reality doesn't depend on truth. So far the picture is: we have a pre-theoretical intuition of asymmetry dependence, and we try to explain this intuition. The proponents of supervenience account appeal to the notion of supervenience, and formulate (sup) and (contra-sup). However, since we have the intuition that reality doesn't depend on truth, we want to reject (contra-sup). The proponents might suggest that, we can simply reject (contra-sup), based on our intuition that reality doesn't depend on truth. But this suggestion seems to be circular: the supervenience account is used to explain the intuition of dependence asymmetry, which is partially the intuition that reality doesn't depend on truth. And then the intuition is further used to reject (contra-sup). What's more, since the proponents consider

[36](MacBride 2014, 372) expresses a similar idea.

[37]See the glossary for explanations on symmetric, asymmetric and non-symmetric relations.

[38]See (Wilson 2005) and (McLaughlin and Bennett 2018).

supervenience to be a proper notion that is used to capture the intuition of dependence asymmetry, they should probably also accept the unwelcome result. Otherwise, they should offer a different reason, instead of the intuition, to reject (contra-sup).

Since the supervenience account cannot account for the asymmetric characteristic of the dependence properly, I turn to other accounts in the Y group. In the next section, I introduce the truth-maker theory.

2.2.2 Truth-Maker Theory

After presenting the supervenience account in the Y group and pointing out that it cannot explain the asymmetric characteristic of the dependence asymmetry between truth and reality, I present the truth-maker theory in the Y group in this section. I firstly start with explaining the main idea of the truth-maker theory. And then I show 5 main definitions of a truth-maker in the literature (section 2.2.2.1). After that, I show (section 2.2.2.2) how to use the truth-maker theory to account for the dependence asymmetry by giving an example (section 2.2.2.2.1). Later, I examine the plausibility of the approach (section 2.2.2.2.2), especially from the perspective of asymmetry (section 2.2.2.2.3). At the end, I conclude that all definitions (except for the grounding account) face difficulties when they are used to explain the dependence asymmetry.

The truth-maker theory could be seen as a way to account for the intuition that truth depends on reality. According to Rodriguez-Pereyra (Rodriguez-Pereyra 2005, 21):

the insight behind the idea of truth-makers is... If a certain proposition is true, then it owes its truth to something else: its truth is not a primitive, brute, ultimate fact. The truth of a proposition thus depends on what reality, and in particular its subject matter, is like. What reality is like is anterior to the truth of the proposition, it gives rise to the truth of the proposition and thereby accounts for it.

Furthermore, Lowe and Rami (Lowe and Rami 2014, 5–8) also consider the possibility that the truth-maker theory provides 'either the best explication or the only adequate explication' (Lowe and Rami 2014, 6) of the intuition of dependence asymmetry. Cameron (Cameron 2018, 334) expresses a similar idea when he claims that truth-maker theorists demand that the existence of the truth-makers should come prior to the truth of propositions, rather than their existence being dependent on the truth of the propositions.

Dodd puts it in the way that this intuition of asymmetric dependence of truth on reality is the most plausible way to motivate the truth-maker theory (Dodd 2007, 393): the asymmetric dependence of truth on reality 'is best explained by the fact that a true proposition has an ontological ground' (Dodd 2007, 393). For Dodd, the ontological ground for a true proposition is the entity that necessitates the truth of the proposition, which is the truth-maker for the proposition.

A full-blooded truth-maker theorist[39] considers the following principle as its central component:

The truth-maker principle (Lowe and Rami 2014, 3):

(TM) *for every proposition ⟨p⟩, ⟨p⟩ is true iff there is an e such that e is a truth-maker for ⟨p⟩.*[40]

Be noted that the following direction of the truth-maker principle is especially important (Lowe and Rami 2014, 3):

(MAX) *for every proposition ⟨p⟩: if ⟨p⟩ is true, then there is an e such that e is a truth-maker for ⟨p⟩.*[41]

This direction is the claim of what we call 'truth-maker maximalism', namely, all true propositions have a truth-maker.[42] An important notion in (TM) and (MAX) is the notion of 'truth-maker'. There are different ways to define a truth-maker. In general, a truth-maker is an entity which makes true some proposition. A definition of a truth-maker is closely related to a definition of a 'making true' relation,

[39] Interested readers might see (Cameron 2018), (MacBride 2020b), (Lowe and Rami 2014), (Liggins 2005), (Bigelow 2009) for further discussions on the truth-maker theory. (Rodriguez-Pereyra 2006) is a summary of main discussions about truth-maker theory.

[40] I change the notations that are used by (Lowe and Rami 2014, 3). The idea is the same.

[41] For a discussion on (MAX), see (Cameron 2008).

[42] Many truth-maker theorists find truth-maker maximalism implausible and try to weaken it in different ways: see (Dodd 2007) for a discussion on restricting (MAX) to non-negative propositions; see (Asay and Baron 2014) for a discussion on the attempt to exclude propositions concerning the past from the scope of truth-maker maximalism.

namely, a truthmaking relation. The following general definition of a truth-maker shows how the notion of a truth-maker is related to the notion of a truthmaking relation:

(DEF) *a truth-maker is an entity e which is related to the corresponding proposition ⟨p⟩ via a truthmaking relation R.*

However, (DEF) hardly says anything substantial about what a truth-maker or a truthmaking relation is. In the following I will present 5 different ways to define a truth-maker and with (DEF), these definitions can be correspondingly adjusted to become the definitions of a truthmaking relation. Hence, I will focus on definitions of a truth-maker.

2.2.2.1 Different Ways to Define a Truth-Maker

The following are 5 main ways in the literature to define the notion of a truth-maker[43] and accordingly the notion of a truthmaking relation:[44]

(1) strict implication

An entity e is a truth-maker for a proposition ⟨p⟩ iff ⟨e exists⟩ strictly implies ⟨p⟩.

(2) necessitation

An entity e is a truth-maker for a proposition ⟨p⟩ iff necessarily, if e exists, p is true.

(3) necessitation + projection

An entity e is a truth-maker for a proposition ⟨p⟩ iff e necessitates ⟨p⟩'s being true and falls within its projection.

(4) essence

An entity e is a truth-maker for a proposition ⟨p⟩ iff it is part of the essence of ⟨p⟩ that ⟨p⟩ is true if e exists.

(5) grounding (predicate form)

An entity e is a truth-maker for a proposition ⟨p⟩ iff the fact that e exists grounds the fact that ⟨p⟩ is true.

In what follows, I will analyse these characterisations, and discuss the difficulties they face.

(1) strict implication

An entity e is a truth-maker for a proposition ⟨p⟩ iff ⟨e exists⟩ strictly implies ⟨p⟩.

Given the definition of strict implication (A strictly implies B iff it is impossible for both A and ¬B to be true), (1) becomes (1*):

(1*) An entity e is a truth-maker for a proposition ⟨p⟩ iff it is impossible that ⟨e exists⟩ is true and ⟨p⟩ is false.

One problem with this definition is with necessary truths. According to the definition, every entity e is a truth-maker for every necessary truth. If ⟨p⟩ is necessarily true, then it is simply impossible for it to be false. Hence, it is surely impossible for it to be false no matter which proposition is true, including the proposition which states the existence of some random entity. One result is that the proposition ⟨an

[43] The definitions are taken from (MacBride 2020b), (Rodriguez-Pereyra 2006). I adjusted them.

[44] As I have mentioned, these 5 definitions of a truth-maker can be adjusted and become definitions of a truthmaking relation. The following are the adjusted definitions of a truthmaking relation:

(1r) strict implication

A relation r is a truthmaking relation iff it is a relation between an entity e and a proposition ⟨p⟩ such that ⟨e exists⟩ strictly implies ⟨p⟩.

(2r) necessitation

A relation r is a truthmaking relation iff it is a relation between an entity e and a proposition ⟨p⟩ such that necessarily, if e exists, p is true.

(3r) necessitation + projection

A relation r is a truthmaking relation iff it is a relation between an entity e and a proposition ⟨p⟩ such that e necessitates ⟨p⟩'s being true and falls within its projection.

(4r) essence

A relation r is a truthmaking relation iff it is a relation between an entity e and a proposition ⟨p⟩ such that it is part of the essence of ⟨p⟩ that ⟨p⟩ is true if e exists.

(5r) grounding (predicate form)

A relation r is a truthmaking relation iff it is a relation between an entity e and a proposition ⟨p⟩ such that the fact that e exists grounds the fact that ⟨p⟩ is true.

architect is an architect⟩ is made true by the existence of a panda in China, which many writers would think is absurd. What's worse, if the definition is combined with the so-called disjunction thesis, then the same problem arises for contingent truth.

(disjunction thesis) *if an entity e is a truth-maker for* $\langle p \vee q \rangle$*, then either e is a truth-maker for* $\langle p \rangle$ *or e is a truth-maker for* $\langle q \rangle$*.*

The disjunction thesis says that if an entity e is a truth-maker for a disjunctive fact, then it is a truth-maker for one of the disjuncts. The following informal proof shows that every entity e is a truth-maker for the contingent truth $\langle p \rangle$:

$\langle p \vee \neg q \rangle$ is necessarily true.

With (1*), $\langle p \vee \neg q \rangle$ is made true by some random entity e.

With (disjunction thesis), either e is a truth-maker for $\langle p \rangle$ or e is a truth-maker for $\langle \neg p \rangle$.

With $\langle p \vee \neg q \rangle$ and the usual definition of negation, either $\langle p \rangle$ is true or $\langle \neg p \rangle$ is true, but not both of them are true.

We supposed that $\langle p \rangle$ is true, therefore $\langle \neg p \rangle$ is not true.

e is not a truth-maker for $\langle \neg p \rangle$, since if it is, then $\langle \neg p \rangle$ cannot be not true.

e is a truth-maker for $\langle p \rangle$.

In this way, we have the conclusion that some random entity e is a truth-maker for the contingent truth ⟨p⟩. Therefore, every entity e is a truth-maker for every contingent truth. If we combine this with the conclusion that every entity is a truth-maker for every necessary truth, we have the conclusion that every entity is a truth-maker for every truth. If every entity in reality is a truth-maker for every true proposition, then the truthmaking relation becomes trivial. (MacBride 2020b) argues that a truth-maker for a true proposition must be relevant to what the true proposition represents as being the case. The following example shows that sometimes it could be very important to have the proper truth-maker: If a panda in China makes true the proposition that ⟨minority groups receive unfair treatments in society⟩, then probably policy makers, sociologists and political philosophers should also study the panda in order to change the situation. Some might respond that truth-makers are different from the causes for the truth. Implicit biases and problematic police actions are causes for the truth of the proposition ⟨minority groups receive unfair treatments in society⟩ and they are what the policy makers, sociologists and political philosophers should study. I am empathetic with this view. However, even if the panda is not a cause for the truth, it is still what makes the proposition true. And those who wants to do justice to the minority groups might still want to look into the panda. This is enough to show that every entity is a truth-maker for every truth is too counter-intuitive.

Another major problem for this definition is related to the strict implication relation. Implication is a relation between one proposition and another proposition. It involves propositions as representations but does not touch on reality. In contrast, truthmaking is a relation which touches on reality. A truth-maker is an entity in reality that makes true some proposition. It is hence suspicious how strict implication is enough to capture the truthmaking relation. The left-to-right direction of (1*) goes through because given the restriction that an entity e is a truth-maker for ⟨p⟩, ⟨p⟩ cannot be true without ⟨e exists⟩'s being true. The right-to-left direction of (1*) does not go through. Even if it is impossible for ⟨p⟩ to be true without ⟨e exists⟩'s being true, this might be due to some other reason. It must not lead to the conclusion that e is hence a truth-maker for ⟨p⟩. As what I have shown above, one reason might be that ⟨p⟩ is a necessary truth. It is simply impossible for it to be not true. From this perspective, strict implication might be a necessary condition for the definition of a truth-maker but in no way it is sufficient.

The situation for definition (2) is similar. Most[45] truth-maker theorists agree that necessity is a necessary condition for the definition of a truth-maker while they admit that it is not sufficient.

(2) necessitation

An entity e is a truth-maker for a proposition ⟨p⟩ iff necessarily, if e exists, p is true.

Necessitation is necessary for being a truth-maker. If an entity e is a truth-maker for ⟨p⟩, then it would be impossible that e exists but ⟨p⟩ is false. If we use possible worlds to understand the modal term 'necessity', then what this condition says is: if an entity e is a truth-maker for ⟨p⟩, then there is no possible world where there is an entity e but the proposition ⟨p⟩ is false. Suppose that in a possible

[45] See (Asay 2017, 13).

world, ⟨p⟩ is false, then there is no truth- maker for ⟨p⟩ in this possible world. If there were a truth-maker for ⟨p⟩, then this truth-maker would have made true ⟨p⟩.

Although necessitation is necessary for being a truth-maker, it is not sufficient. The same problem arises with necessary truth. No matter which entity e exists, if ⟨p⟩ is a necessary truth, then necessarily, if e exists, ⟨p⟩ is true. But this leads to the same result that a random entity could be a truth-maker for every necessary truth.

Definition (3) is an attempt to rescue (2) by adding to it another condition so that it might be sufficient for defining a truth-maker:

(3) necessitation + projection[46]

An entity e is a truth-maker for a proposition ⟨p⟩ iff e necessitates ⟨p⟩'s being true and falls within its projection.

Since necessity is too loose a condition to capture the notion of truth-maker, projection functions as a tool to rule out some undesirable truth-makers and help better capture the notion of truth-maker. A projection[47] of a proposition can be viewed as the ontological commitment of the proposition. (Schnieder 2006a) formulates it in this way:

x is a projection[48] of the proposition ⟨p⟩ iff $\Box(p \rightarrow E!x)$

From right to left it reads: if it is necessary that ⟨p⟩ entails the existence of x, then x is the projection of ⟨p⟩.[49] Let's take the proposition ⟨Panda is adorable⟩ as an example. Arguably if the proposition ⟨Panda is adorable⟩ is true, then necessarily it entails the existence of at least one panda. In this way, this panda is a projection of the proposition ⟨Panda is adorable⟩.

How does projection help to rule out some undesirable truth makers? If we consider the necessary truth ⟨Panda is Panda⟩, then the possibility that the planet Mars makes it true is ruled out. Mars is not a projection of the proposition because the truth of the proposition does not entail the existence of Mars, let alone necessarily entails it. However, Schnieder (Schnieder 2006a, 71–72) argues that adding projection to the definition would not help. The reason is that although projection helps rule out some unwanted truth-makers, it cannot rule out all unwanted truth-makers, which is to say that the combination of necessitation and projection is still too loose to capture the proper truth-makers.[50]

The problems of definition (2) and (3) might in general lead to doubts about whether relying on the modal notion of necessity to capture the notion of truth-maker is promising at all. The following two definitions adopt different approaches: definition (4) makes use of the notion of essence to define what is a truth-maker; definition (5) appeals to the notion of grounding to capture the notion of truth maker.

(4) essence

An entity e is a truth-maker for a proposition ⟨p⟩ iff it is part of the essence of ⟨p⟩ that ⟨p⟩ is true if e exists.

One example to show the notion of essence might be more discriminating than the notion of necessitation is the classic example: Socrates and the singleton Socrates. A singleton is a set with exactly one member. The singleton Socrates is the set with only Socrates as its member. If we only take necessitation as the condition, then Socrates is a truth-maker for ⟨the singleton Socrates exists⟩ and also the singleton Socrates is a truth-maker for ⟨Socrates exists⟩. Necessarily, if Socrates exists then its singleton exists and vice versa. But it is counter-intuitive that the singleton is a truth-maker for ⟨Socrates exists⟩. What makes true ⟨Socrates exists⟩ is Socrates, the person himself, but not a set which has Socrates as its member. We need to find a way to rule out this.

If we take essence as the condition, then we can rule out the singleton Socrates as a truth-maker for ⟨Socrates exists⟩. One example of using 'essence' to understand the notion of a truth-maker is (Lowe

[46] See (Smith 1999) for an account of definition (3). Although he uses judgements as truth-bearers, it can be adjusted to fit our discussions on propositions. For Smith, a projection holds between a judgement p and an object x when the truth of p entails the existence of x.

[47] For recent views on presupposition projection, see (Rothschild 2008), (Rothschild 2011), (Schlenker 2008).

[48] Smith's definition of projection is more complicated than this. This is the definition of a rigid projection. But having a rigid projection might be too strict for the definition of truth-maker. Therefore, Smith makes use of the notion of a generic projection. Further discussions see (Schnieder 2006a), (Smith 1999).

[49] We ignore the trivial cases where p is false and hence the conditional is trivially true.

[50] For readers who are interested in what exactly cannot be ruled out by this approach, I refer them to (Schnieder 2006a).

and Rami 2014). Lowe proposes to use what he calls 'essential dependence' to cash out the idea of truthmaking (Lowe and Rami 2014, 212) and to explain the notion of a truth-maker (Lowe and Rami 2014, 214). An entity is a truth-maker for a proposition if and only if it is part of the essence of the proposition that it is true if the entity exists (Lowe and Rami 2014, 214). By the 'essence' of an entity Lowe means 'that in virtue of which it is the very entity that it is' (Lowe and Rami 2014, 212). More concretely speaking, for an entity, it is part of the essence of this entity that it belongs to a certain ontological category and it is also part of the essence of this entity that it is that member of the category as opposed to any other member.

Let's consider the essence of propositions. Suppose that propositions form an ontological category, then it is part of the essence of any proposition that it is a proposition, and it is also part of the essence of any proposition that it is that proposition, as opposed to any other proposition (Lowe and Rami 2014, 212). Furthermore, there are some propositions which depend for their identities on entities of other ontological categories. For example, the proposition ⟨Socrates exists⟩[51] depends for its identity on the person Socrates. This proposition is essentially about the person Socrates and it wouldn't be the very proposition that it is without being about this person. According to Lowe (Lowe and Rami 2014, 213), the proposition ⟨Socrates exists⟩ is directly essentially dependent on the person Socrates, which is to say, the propositional entity ⟨Socrates exists⟩ includes in its essence a relation to the person Socrates. In this way, it is part of the essence of ⟨Socrates exist⟩ that it is true if the person Socrates exists. However, it is not part of the essence of ⟨Socrates exists⟩ that it is true if the singleton Socrates exists. ⟨Socrates exists⟩ is not about the singleton Socrates but rather the person Socrates. The person Socrates, instead of the singleton Socrates, is the reason why the proposition is the very proposition it is, as opposed to any other proposition. Therefore, the proposition doesn't not essentially depend on the singleton Socrates and the singleton Socrates is not a truth-maker for ⟨Socrates exists⟩.

However, I don't think this approach is convincing. How we understand the essence of propositions depends on how we understand propositions. If we accept the neo-Russellian view of propositions, then propositions are structured entities with individuals, properties, and relation as constituents (King 2018, 319). The proposition ⟨Socrates exists⟩ is an entity which has the person Socrates as its constituent. In this way, it is plausible that the proposition includes in its essence a relation to Socrates. However, if we accept the Fregean view of propositions, then propositions are not composed out of things in the external physical world (e.g., individuals, properties). Propositions are not part of the external physical world and they exist timelessly and independently of any thinker (King 2018, 309-310). If a Fregean proposition is not composed out of things in the external physical world, then it is hard to see how the proposition ⟨Socrates exists⟩ includes in its essence a relation to the person Socrates. Afterall, only a neo-Russellian proposition might have relations as its constituents. Consequently, different views on propositions lead to different views on whether ⟨Socrates exists⟩ includes in its essence a relation to the person Socrates or not, which further lead to different views on whether the person Socrates makes true ⟨Socrates exists⟩ or not. However, no matter how one understands propositions, she will likely agree that the person Socrates indeed makes true the proposition ⟨Socrates exists⟩. If a definition of a truth-maker renders it the case that writers with different views on propositions (and hence different views on the essence of propositions will have different opinions on whether the person Socrates makes true ⟨Socrates exists⟩ or not, then this might not be a very satisfactory definition of a truth-maker.

(5) grounding (predicate form)

An entity e is a truth-maker for a proposition ⟨p⟩ iff the fact that e exists grounds the fact that ⟨p⟩ is true.

I will not discuss the grounding definition here. I will introduce the notion of grounding in section 2.2.3.1 and then talk about the existing opinions on the relation between grounding and truthmaking. After that, we will have a better idea of whether (5) is a satisfactory definition or not.

2.2.2.2 Truth-Maker Theory and Dependence Asymmetry

In the last section, I have shown that there are different ways to define a truth-maker and discussed the difficulties they face. In this section, I present an example of using the truth-maker theory to

[51] The original example that Lowe uses is the proposition ⟨a is F⟩, see (Lowe and Rami 2014, 213).

explain the dependence asymmetry, which is Horwich's explanatory deduction account (Horwich 2008, 258,264). After that, I consider the plausibility of using the truth-maker theory to capture the dependence asymmetry. At the end, I conclude that we are only left with the grounding definition. All other definitions have their own difficulties.

2.2.2.2.1 Horwich's Explanatory Deduction Account

Horwich's view of a truth-maker can be seen as a modification of definition (1). Instead of strict implication, Horwich makes use of what he calls 'explanatory deduction' (Horwich 2008, 265). Suppose that x makes ⟨p⟩ true, Horwich's explanatory deduction is formulated in the following way (Horwich 2008, 265):

x makes true ⟨p⟩ = x exists and there is an explanatory deduction from ⟨x exists⟩ to ⟨p⟩[52]

The deduction from ⟨x exists⟩ to ⟨p⟩ is not a logical deduction.[53] For example, if the fact [oranges contain vitamin c] makes the proposition ⟨oranges have multiple health benefits⟩ true, then, according to Horwich's explanatory deduction account, there is a deduction from ⟨[oranges contain vitamin c] exists⟩ to ⟨oranges have multiple health benefits⟩. The deduction is not a logical deduction because in a standard logical system, we cannot logically deduce the proposition ⟨oranges have multiple health benefits⟩ from the proposition ⟨[oranges contain vitamin c] exists⟩. The deduction is an explanatory deduction in the sense that the existence of the fact [oranges contain vitamin c] explains why the relevant proposition is true.

Horwich uses his explanatory deduction account to capture dependence asymmetry (Horwich 2008, 264–265). Suppose that the truth of ⟨the international space station is the most expensive man-made object⟩ depends on the existence of the modular space station. According to the explanatory deduction account, there is an explanatory deduction from ⟨the international space station exists⟩ to ⟨the international space station is the most expensive man-made object⟩. The existence of the international space station explains why it is true that it is the most expensive man-made object.

2.2.2.2.2 Plausibility

After presenting an example of using the truth-maker theory to capture dependence asymmetry, now I consider the plausibility of using the truth-maker theory to capture the dependence asymmetry.

If we use the idea of truthmaking to capture the dependence asymmetry, then these different definitions of a truth-maker (and accordingly different definitions of a truthmaking relation) capture the dependence asymmetry in different ways. Suppose that the truth of ⟨Pluto was considered to be the ninth planet of the solar system⟩ depends on the fact that Pluto was considered to be the ninth planet of the solar system but was downgraded to be a dwarf planet in 2006. If we use the truth-maker theory to capture this dependence asymmetry, then the fact that Pluto was considered to be the ninth planet of the solar system is a truth-maker for the corresponding proposition. According to definition (1), ⟨the fact that Pluto was considered to be the ninth planet of the solar system exists⟩ strictly implies ⟨Pluto was considered to be the ninth planet of the solar system⟩. According to definition (2), necessarily, if the corresponding fact exists, ⟨Pluto was considered to be the ninth planet of the solar system⟩ is true. According to definition (4), it is part of the essence of the relevant proposition that it is true if the fact exists.

There are several perspectives to consider how well these definitions capture the dependence asymmetry:

(1) how well they capture the notion of a truth-maker;

[52] To be more accurate, according to Horwich, this formulation is the result of adopting a specific view of truth (deflationary conception of truth) (Horwich 2008, 261–263). Without adopting a specific view of truth, the formulation is: x makes true ⟨p⟩ = x exists and there is an explanatory deduction from ⟨x exists⟩ to ⟨⟨p⟩ is true⟩ (Horwich 2008, 265). I ignore this because firstly, the detail doesn't matter here and secondly, I don't agree with Horwich that in order to have the formulation we need to adopt a specific view of truth. The reason is that writers with different views on the nature of truth generally accept that ⟨p⟩ if and only if ⟨⟨p⟩ is true⟩.

[53] There are exceptions: for example, the proposition ⟨there are propositions⟩ makes itself true. In this way, according to Horwich's account, there is a deduction from ⟨⟨there are propositions⟩ exists⟩ to ⟨there are propositions⟩. In a standard logical system, we can deduce the latter proposition from the former proposition.

(2) how well they capture the asymmetric characteristic.

I have already considered perspective (1) when I analysed these definitions. As definitions of a truth-maker, they have their own difficulties. If they cannot properly define a truth-maker, then it is doubtful that they can properly capture the idea that a proposition is made true by a truth-maker. Hence, it is also doubtful that they can capture the idea of the truth's dependence on reality.

Before I proceed with (2), I firstly address Dodd's general argument against using the truth-maker theory to account for the dependence asymmetry. In general, I don't think the argument is valid. Dodd considers the scope of the truth-maker theory and points out one problem for using the truth-maker theory to capture dependence asymmetry (Dodd 2007, 394): many truth-maker theorists agree that the scope of the truth-maker principle needs to be restricted to certain groups of propositions (for example, atomic propositions, non-negative propositions, etc.). However, if the truth-maker theory is to explain the dependence asymmetry, this restriction appears to be arbitrary: the intuition of dependence asymmetry is an intuition concerning 'truth in general' (Dodd 2007, 394).[54] What Dodd suggests is that any restriction on the scope of the truth-maker principle goes against the generality of dependence asymmetry. The restriction seems to render it the case that the propositions that are outside the scope of the truth-maker principle don't depend on reality for their truths. But they do.[55]

What Dodd's argument says is that the following three points cannot be consistently maintained: (i) the dependence asymmetry should be captured by the truth-maker principle; (ii) the truth-maker principle is restricted to certain groups of propositions; (iii) the propositions outside the scope of the truth-maker principle also depend on reality for their truths. On the surface, (i), (ii) and (iii) appear to be in tension: if the truth-maker principle is how we should capture the dependence asymmetry in general, then no propositions should fall outside the scope of the truth-maker principle, otherwise the truth-maker principle cannot be used to explain why their truths depend asymmetrically on reality. Consequently, the truth-maker principle cannot be restricted to certain groups of propositions.

Dodd uses the following example to elaborate on the tension (Dodd 2007, 393): suppose that the truth-maker principle is restricted to the group of atomic propositions. Hence, the non-atomic propositions don't have truth-makers. But they still depend on reality for their truths. If the dependence asymmetry is captured by the truth-maker principle, then the dependence asymmetry of the non-atomic propositions cannot be explained.

However, if we take a closer look, we can see that this tension can be resolved.[56] Suppose that the atomic proposition ⟨p⟩ has a truth-maker p*, and the atomic proposition ⟨q⟩ has a truth-maker q*. Given the restriction on the truth-maker principle, the complex proposition ⟨p and q⟩ doesn't have a truth-maker. But this doesn't mean that its truth's dependence on reality cannot be explained. As long as the truth of ⟨p and q⟩ is explained in terms of the truth of ⟨p⟩ and the truth of ⟨q⟩ (no matter how), I don't see how this doesn't amount to that the truth of ⟨p and q⟩ also depends on reality. Certainly, the truth of ⟨p and q⟩ doesn't depend on reality in the sense that it has truth-makers in reality. But it does depend on reality in the sense that it is decided by the truth of ⟨p⟩ and the truth of ⟨q⟩, which further depend on reality.

Furthermore, this is not against (i) because the dependence asymmetry is still captured by the truth-maker principle, only that a certain theory on how the complex propositions depend for their truths on the truths of atomic propositions is added. Consequently, truth-maker theorists have no problem maintaining (i), (ii) and (iii) together.

After refuting Dodd's argument, I consider the plausibility of using the truth-maker theory to capture the dependence asymmetry from the perspective (2), namely, how well they capture the asymmetric

[54] To be accurate, Dodd (Dodd 2007, 394) only considers non-analytic truths. I ignore this point because it doesn't affect the argument and my response.

[55] There are some exceptions: for example, a proposition might rely on another proposition for its truth. These exceptions don't matter because if a proposition A relies on a proposition B for its truth, then the proposition B could be seen as the reality that makes true proposition A.

[56] In fact, Dodd himself has suggested this solution without realizing it: for Dodd's explanation on the truth of non-atomic propositions, see (Dodd 2007, 393): 'the truth of complex propositions is to be explained in terms of the truth of their atomic constituents'. See (Dodd 2007, 393) for his formulation on the restricted truth-maker principle: 'necessarily, if ⟨p⟩ is an atomic truth, then there exists at least one entity α such that α necessitates ⟨p⟩'s truth'.

characteristic.

2.2.2.2.3 Asymmetry

In this section, I firstly consider whether Horwich's explanatory deduction account can capture the asymmetric characteristic. After that, I consider the plausibility of definitions (1-4), and see if they can be used to account for the asymmetric characteristic.

I have presented different definitions of a truth-maker. Although they define a truth-maker in different ways, prima facie they all can capture the dependence of truth on reality (leaving aside the perspective (1)). For example, if we adopt definition (2), then the relation between the truth-maker and the true proposition is a kind of necessitation relation. Truth depends on reality in the sense that reality necessitates truth. However, it is questionable whether the truth-maker theory can explain why reality doesn't depend on truth or not.

Consider Horwich's explanatory deduction account. Presumably, according to this account, the reason why reality doesn't depend on truth is because truth doesn't explain reality. The existence of the international space station explains why ⟨the international space station is the most expensive man-made object⟩ is true. But the other direction is wrong. The existence of the international space station is not explained by some true proposition. It is rather explained by the collaboration of several space agencies from the US, Russia, Japan, the EU and Canada. If truth doesn't explain reality, then there is no explanatory deduction from the proposition that expresses the truth to the proposition that expresses reality. Consequently, reality doesn't depend on truth.

This seems to be a plausible account for the asymmetric characteristic. The only problem is that it is not clear what decides the order of explanation. Why the existence of the international space station explains the truth of ⟨the international space station is the most expensive man-made object⟩ but not the other way around? Horwich's notion of explanation is not elaborate enough[57] for us to decide whether his account is plausible or not. If one wants to use the explanatory deduction account to capture the dependence asymmetry, she needs to supplement it with an account of explanation which is able to capture the asymmetric characteristic.

As for the strict implication account (definition (1)) and the necessitation account (definition (2)), neither of them is able to capture the asymmetric characteristic. According to the strict implication account, the truth of ⟨p⟩ depends on the existence of e because ⟨e exists⟩ strictly implies ⟨p⟩. However, ⟨p⟩ also strictly implies ⟨e exists⟩: given the definition of strict implication (namely, ⟨e exists⟩ strictly implies ⟨p⟩ if and only if it is impossible that ⟨e exists⟩ is true and ⟨p⟩ is false), the truth of ⟨e exists⟩ is not compatible with the falsity of ⟨p⟩. If the truth of ⟨e exists⟩ is not compatible with the falsity of ⟨p⟩, the falsity of ⟨e exists⟩ is also not compatible with the truth of ⟨p⟩. In this way, it is also impossible that ⟨p⟩ is true and ⟨e exists⟩ is false. Hence, ⟨p⟩ also strictly implies ⟨e exists⟩. Consequently, the existence of e also depends on the truth of ⟨p⟩. According to the necessitation account, the truth of ⟨p⟩ depends on the existence of e if and only if necessarily, if e exists, ⟨p⟩ is true. Even if it is necessary that if e exists, ⟨p⟩ is true, it might also be the case that necessarily, if ⟨p⟩ is true, then e exists. In this way, it is also possible for the existence of e to be dependent upon the truth of ⟨p⟩.

As for the necessitation plus project account (definition (3)) and the essence account (definition (4)), both of them are able to capture the asymmetric characteristic. The necessitation plus projection account is able to capture the asymmetric characteristic. The reason is: adding the notion of projection rules out the possibility that reality also depends on truth. Projection is a notion which is only appliable to propositions. Hence, although the truth of ⟨p⟩ also necessitates the existence of e, it is not the case that the truth of ⟨p⟩ falls within the projection of e, which is not a proposition at all.[58] The essence

[57] Horwich mentions briefly that his notion of explanation is a kind of 'constitutive explanation' (Horwich 2008, 271) or 'constitutive ground' (Horwich 2008, 271). It seems like that what he has in mind is similar to the grounding account that I will present later. If that is the case, the plausibility of Horwich's account depends on the plausibility of the grounding account.

[58] Here I leave aside the question of whether definition (3) offers a *positive* explanation for the asymmetric characteristic or not. I have already mentioned in section 2.2.2.1 that it cannot define the notion of a truth-maker properly. Consequently, even if it can offer a positive explanation for the asymmetric characteristic, it still cannot account for the dependence asymmetry properly.

account is also able to capture the asymmetric characteristic. Let's again consider Lowe's account (Lowe and Rami 2014). According to the definition (4), the dependence of ⟨p⟩'s truth on the existence of e is captured by the idea that it is part of the essence of ⟨p⟩ that it is true if e exists. In the same vein, the dependence of the existence of e on the truth of ⟨p⟩ is presumably captured by the idea that it is part of the essence of e that it exists if ⟨p⟩ is true. Suppose that the truth of ⟨this apple is round⟩ depends essentially on the apple. If Lowe's account is able to capture the asymmetry characteristic, it should be able to explain why it is not the case that it is part of the essence of the apple that it exists if ⟨this apple is round⟩ is true. Lowe's account can presumably explain this. The reason is, according to Lowe, it is not plausible that the apple, as a non-propositional entity, has it as part of its essence that it is related in any way to some proposition (Lowe and Rami 2014, 214).

In conclusion, I have shown that: Horwich's explanatory deduction account cannot by itself capture the asymmetry characteristic and it needs the supplement of an account of explanation; the strict implication account and the necessitation account are not able to capture the asymmetric characteristic; although both the necessitation plus projection account and the essence account are able to capture the asymmetric characteristic, they are not satisfactory definitions for a truth-maker (as I have shown in section 2.2.2.1). Consequently, for the approach of using the truth-maker theory to explain the dependence asymmetry, we are left with the grounding account (definition (5)), which I am going to discuss in the following section.

2.2.3 Grounding

After showing that definitions (1-4) cannot explain the dependence asymmetry properly, in what follows, I present the grounding account (definition (5)). I firstly introduce the notion of grounding (section 2.2.3.1). After that, I represent different views on the relation between grounding and truthmaking. I conclude that the most promising view considers truthmaking to be a species of grounding (section 2.2.3.2).

2.2.3.1 The Notion of Grounding

In the modern discussions of the notion 'grounding',[59] writers (Fine 2012), (Trogdon 2013), (Raven 2015), (Clark and Liggins 2012) usually start with some concrete examples:

(1) The truth-value of a proposition is determined by how the world is. (Clark and Liggins 2012)

(2) The fact that the ball is red and round obtains in virtue of the fact that it is red and the fact that it is round. (Fine 2012)

(3) A mental state is grounded in the brain state which realizes it. (Clark and Liggins 2012)

These examples are examples of grounding claims and there are different expressions in the examples which express the notion 'grounding': 'is determined by', 'in virtue of' and 'is grounded in'. Usually 'because' is also considered as a grounding expression.

Having presented these different examples of grounding claims, now the question is: what is the notion of grounding? Writers have different views: (Clark and Liggins 2012) views grounding as a kind of non-causal dependence relation,[60] [61] which is in contrast to causal dependence relation. According

[59]There are ancient notions of grounding. For example, Bolzano's notion of grounding (see (Rusnock and George 2014)). For analyses of Bolzano's grounding, see (Betti 2010) and (Rumberg 2013). Poggiolesi's work (see (Poggiolesi 2016) and (Poggiolesi 2018)) is an example of Bolzano-inspired grounding. In addition, MacBride also thinks that there are early exponents of grounding, according to him (MacBride 2020b, 20): 'early exponents of grounding within analytic philosophy date from 1960s ((Bergmann 1966, 229), (Hochberg 1967, 416-417))'.

Cf. (Correia and Schnieder 2012b) for a different view on the history of research on grounding. According to them, 'a serious interest in grounding only arose again at the beginning of the twenty-first century'. (Clark and Liggins 2012, 813) also mentions that 'sustained discussion of grounding is – with a few exceptions – a recent phenomenon'. Also see (Trogdon 2013) for this claim: (Fine 2012) is sympathetic with the view that there are various grounding notions. They are not orthodox in the sense that they don't already have currency in discussions of dependence in philosophy.

[60]Some writers view grounding as a primitive and non-analysable notion. See (Trogdon 2013) for further information.

[61]Be noted that some writers remain ontologically neutral and they don't think grounding is a relation. For example, (Correia and Schnieder 2012b) and (Fine 2012) adopt the connective view of the logical form of the

to (Fine 2012), grounding[62] is what backs metaphysical explanations. For example, (2) can be seen as an explanatory claim: both the fact that the ball is red and the fact that the ball is round explain why the ball is red and round. This explanatory claim is supported by grounding, just like that a causal explanation is supported by some sort of causal mechanism.

If grounding is considered to be what backs metaphysical explanations,[63] then a realism view of explanation is presupposed here. According to the realism view of explanation, an explanation is backed by worldly determination. One way to understand worldly determination is that, something in the world makes something else exist or happen. For example, the mental phenomena can be seen as determined by physical phenomena. Furthermore, there are different ways to understand the notion of backing (Raven 2020, 125): backing can be understood as a matter of information content. In this way, an explanation is backed by grounding in the sense that the explanation contains information about grounding; backing can also be understood in terms of mereological relations. In this way, an explanation is a complex whose parts are an explanandum, an explanans, and grounding. The explanation is backed by one part of itself, namely, grounding.

In addition, writers disagree on whether grounding is unitary or not.[64] Some writers[65] agree that grounding is unitary. They propose that different grounding expressions (e.g., (1-3)) involve one and the same grounding relation. Some writers[66] consider grounding to be variegated. They hold the view that different grounding expressions involve different relations. It's also possible to maintain that grounding is both unitary and variegated: grounding is unitary in the sense that there is a coarse-grained relation – the relation of grounding tout court; grounding is also variegated in the sense that there are several fine-grained grounding relations. One way[67] to understand the relations between grounding tout court and the fine-grained grounding relations is to view them as standing in genus/species relation.[68] Grounding tout court is the genus and the various fine-grained grounding relations are the species belonging to the genus. Roughly speaking, a genus is a group of things which share common characteristics, and it can be subdivided into different species. A species belongs to a genus because it has the characteristics that are typical of the genus. For instance, rosa is a plant genus and it contains many different species of roses. One example of viewing grounding tout court and the fine-grained grounding relations as standing in genus/species relation is Griffith (Griffith 2014). According to Griffith, truthmaking is a species of grounding and it involves a unique form of dependence. I will present Griffith's view in section 2.2.3.2.3.

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grounding expressions and therefore see grounding expressions as sentential connectives. For them, grounding expressions must not be viewed as predicates which usually denote relations. Here I use 'relation' but don't commit to the existence of the corresponding relation ultimately. This is allowed because writers who adopt the connective view can still define a relational predicate in terms of the sentential connective and therefore talk about 'the relation of grounding' for convenience's sake. The relation can be explained away with the help of sentential connectives.

[62] The 'grounding' here is metaphysical grounding for (Fine 2012). In addition to metaphysical grounding, Kit Fine thinks that there are also natural grounding and normative grounding.

[63] There are different views on explanations. According to (Bliss and Trogdon 2014, 10-12), an explanation is 'a list of facts where some of them bear an *explanatory relation* to the others'; according to Glazier (Raven 2020, 122), there may be forms of explanations that involve things other than facts. For example, we may explain what Socrates' singleton set is by saying that it is the set whose sole member is Socrates.

[64] See (Bliss and Trogdon 2014, 3-5) and (Clark and Liggins 2012, 820-821).

[65] They include, among others, Audi (Audi 2020, 689-690) and Schaffer (Schaffer 2009, 376-377).

[66] Typically, writers who are against the notion of grounding suggest that the notion lacks unity. For example, one of Wilson's arguments against positing grounding in addition to other more specific metaphysical relations (e.g., type identity, token identity, the set membership relation, the proper subset relation, etc.) is (Wilson 2014, 567-570): there is little terminological, formal and metaphysical unity among these more specific metaphysical relations which might need grounding as a unifier. Besides, Fine (Fine 2012, 37-40), as a proponent of grounding, also maintains that grounding is variegated.

[67] Another possibility is to view them as standing in determinable/determinates relation. The grounding tout court is the determinable and the various fine-grained grounding relations are determinates of the determinable. One example of determinable/determinates relation is (Wilson 2017, 1): colour is a determinable and it has green, orange, and other shades of colours as determinates. Interested readers might see (Bliss and Trogdon 2014, 4-5). For criticisms of this view, see (Wilson 2014) and (Koslicki 2015).

[68] See, among others, (Griffith 2014), (Rodriguez-Pereyra 2015) and (Asay 2017).

2.2.3.2 Grounding and Truthmaking

After introducing the notion of grounding, I present different understandings of the relation between grounding and truthmaking in this section. In the literature, there are 3 positions on the relation between truthmaking and grounding so far:

(1) truthmaking should be replaced by grounding (Fine 2012).

(2) truthmaking is not a case of grounding (Audi 2020).[69]

(3) truthmaking is a species of grounding ((Griffith 2014), (Rodriguez-Pereyra 2015), (Asay 2017)).

2.2.3.2.1 Truthmaking Should Be Replaced by Grounding

I will start with Fine's criticisms (Fine 2012, 43-46) of the truth-maker theory and then present Asay's replies (Asay 2017) to them.[70] Fine (Fine 2012, 43-46) articulates some criticisms of the truth-maker theory from the perspective of the theory of ground:

(i) what is grounded (Fine 2012, 43): truth-maker theorists only consider the ground for representational entities (e.g., propositions). This is too restricted because we are also interested in the ground for worldly entities (e.g., facts).

(ii) what grounds (Fine 2012, 43-44): truth-maker theorists always take the existence of something as the ground for truth and this is too restricted. Truth can also be grounded in something of some other form, for example, something relational (e.g., a standing in the relation R to b). I suppose what Fine has in mind is the following:[71] consider the truth that the rose is red. There are (at least) two candidates for the ground for this truth: the fact [the rose is red] and the rose's having the property of being red. Fine seems to think that truth-maker theorists take the existence of the fact [the rose is red] as the ground, and this is too restricted for him. He seems to think that the rose's having the property of being red, as something relational, is also a legitimate ground. Presumably, the rose's having the property of being red is something relational because the rose stands in the relation of 'having' to the property of being red.

(iii) lack of uniformity between what grounds and what is grounded (Fine 2012, 44-45): the truth-making relation requires that one of the relata is truth and another one is existence. But this makes it impossible to explain the grounding relations of various phenomena. For example, the truth-maker theory cannot decide what grounds the existence of natural phenomena because existence is not something which can be made true.

(iv) the truthmaking relation (Fine 2012, 45-46): the truthmaking relation is too liberal. The sufficient condition for f to be a truth-maker for p is that the existence of f necessitates the truth of p. This leads to a counterintuitive result: all necessary truths are made true by anything, since anything necessitates necessary truths.

Having introduced Fine's criticisms of the truth-maker theory ((i)-(iv)), I present Asay's replies to them. Regarding (i), according to Asay (Asay 2017, 4-6), Fine (Fine 2012, 43) mistakenly presupposes that the truth-maker theory aims to give an exhaustive account of what grounds what. If truth-maker theorists indeed aim to give an exhaustive account of what grounds what, then Fine's criticism is valid: it is too restricted to merely consider the ground for representational entities, and truth-maker theorists should also consider the ground for worldly entities (e.g., facts). However, truth-maker theorists are merely looking for proper truth-makers for true propositions. In other words, they merely look for ground for true propositions. Fine's first criticism (i) is based on a mistaken presupposition, and hence should be rejected. As far as I'm concerned, Asay's reply is correct. The aim of the truth-maker theory is to find proper truth-makers for true propositions. Hence, what concerns truth-maker theorists is the ground for true propositions rather than the ground for everything. We can see that many discussions on the truth-maker theory focus on what are proper truth-makers.[72] In other words, they focus on

[69](Asay 2017, 17-18) mentions this position without adopting it: truthmaking is not a case of grounding in the sense that they are just different. Grounding theory reveals how true propositions stand to one another in relation to fundamentality. And truth-maker theory tells us what exists for the propositions to be true.

[70]Rodriguez-Pereyra (Rodriguez-Pereyra 2015, 3-4) has similar replies to Fine's criticisms.

[71]Fine (Fine 2012, 43-44) doesn't spell out his view in detail.

[72]See (Caputo 2013, 276) for a similar opinion.

what are proper grounds for truth. For example, (Dodd 2007) considers the problem of providing truth-makers for negative truths. (Cameron 2008) discusses whether all true propositions have a truth-maker. (Rodriguez-Pereyra 2005) explores whether truth-makers take the form of existences of entities.

Regarding (ii), Asay (Asay 2017, 6-10) maintains that the distinction between the existence of something and something relational is problematic. Fine presupposes that there is a distinction between the existence of something and something relational. Based on this distinction, he argues that truth-maker theorists only take the existence of something as grounds, and this is too restricted. However, Asay challenges this distinction: according to him, something relational is still something and it is still something that exists. In this way, there is no such a distinction between the existence of something and something relational. Consider the red rose example. Suppose that what grounds the truth that the rose is red is the rose's having the property of being red. Fine considers this ground to be something relational: the rose stands in the relation of 'having' to the property of being red. If this ground is something relational, then it is not the existence of something (according to Fine's distinction). Asay maintains that this ground is also the existence of something: the existence of the fact [the rose stands in the relation of 'having' to the property of being red].[73] Hence, the distinction between something relational and the existence of something is problematic. In this way, Fine's criticism of the truth-maker theory is rejected.

I think (ii) can be rejected for another reason: granted that there is a legitimate distinction between something relational and the existence of something, contrary to what Fine claims, truth-maker theorists don't always take the existence of something as the ground for truth. There are on-going debates (e.g., (Rodriguez-Pereyra 2005), (Hornsby 2005), (Horwich 2008), (Melia 2005) within the project of truth-maker theory about whether truth-makers should be the existences of some entities or not. For example, Rodriguez-Pereyra (Rodriguez-Pereyra 2005, 23-31) takes the existence of something, namely, the existence of the fact [the rose is red] as the ground for the truth that the rose is red. In contrast, Horwich (Horwich 2008, 273) doesn't take the existence of some fact as the ground for the truth that the rose is red. For him, ⟨the rose is red⟩ is true because the rose is red. The ground here is like what Fine calls 'something relational', namely, the rose's having the property of being red. Therefore, Fine (Fine 2012, 43-44) mistakenly claims that truth-maker theorists always take the existence of something as the ground for truth. But in fact, whether the ground for truth always have the form of the existence of something or not is still an open question for some truth-maker theorists.

Regarding (iii), Asay (Asay 2017, 10) argues that, like (i), this is not a problem for the truth-maker theory. Truth-maker theory only aims to explain the dependence relation between truth and reality. I agree with Asay: since truth-maker theory only aims to explain the dependence relation between truth and reality, it is mistaken to ask the truth-maker theorists to explain the grounding relations of various phenomena.

Regarding (iv), Asay (Asay 2017, 12-15) argues that, in contrast to what Fine (Fine 2012, 45) claims, most truth-maker theorists agree that necessity is necessary but not sufficient for the truthmaking relation. A main task for truth-maker theorists is to find a way to complement it so that the truthmaking relation is sufficiently explicated. I agree with Asay. As I presented 5 definitions of a truth-maker (section 2.2.2.1), I have shown that, the necessitation definition (definition (2)) faces difficulties and therefore projection is added to rule out unwanted truth-makers (definition (3)). Furthermore, the essence account (definition (4)) also serves as an alternative definition of a truth-maker.

In conclusion, Fine's arguments for replacing truthmaking with grounding are not convincing and the relation between truthmaking and grounding needs to be further explored. In what follows, I turn to position (2) on the relation between grounding and truthmaking, namely, the view that truthmaking is not a case of grounding.

2.2.3.2.2 Truthmaking is Not a Case of Grounding

Audi (Audi 2020) argues for (2) from multiple perspectives.[74] The one that is relevant to dependence asymmetry is that, for Audi, we don't need a truthmaking relation to explain 'what is true is fixed by ontology (Audi 2020, 18)'. In fact, Audi maintains that there is no such a relation of truthmaking

[73] Asay doesn't spell out in detail how something relational is also the existence of something. The red rose example is my own interpretation.

[74] Interested readers might see (Audi 2020, 7-16) for other perspectives.

(Audi 2020, 8). In contrast, grounding is a relation (Audi 2020, 16). Consequently, truthmaking is not a case of grounding. In order to argue that there is no such a relation of truthmaking, Audi (Audi 2020, 16-17) appeals to a semantic mechanism. What appears to be truthmaking is in fact the holding of two conditions (Audi 2020, 17): (1) a proposition's saying that such-and-such is the case; (2) the obtaining of a fact that counts as such-and-such being the case.

Granted that we agree with Audi that we don't need a relation of truthmaking to explain truth's dependence on reality (Audi 2020, 18), we might need it to explain another direction of the dependence asymmetry, which is that reality doesn't depend upon truth. This is the (asymmetry) principle which I mentioned in section 1.3. To reiterate: the intuition of the asymmetric dependence between truth and reality is separated into the following two principles:

(truth-reality dependence) truth depends on reality.

(asymmetry) reality does not depend on truth.

Even if we don't need the relation of truthmaking for (truth-reality dependence), we need it for the (asymmetry) task. Audi might reply that since there is no genuine dependence relation between truth and reality, there is no such a task to be fulfilled. My response is: this is missing the point. We don't need a genuine dependence relation to claim that there is a dependence phenomenon between truth and reality. And it is the asymmetric characteristic of this dependence phenomenon that needs to be explained. The mere appeal to a semantic mechanism cannot explain this asymmetry. Therefore, we need truthmaking as grounding.

Audi might further argue that the asymmetric task is trivial: it is simply the lack of the dependence in another direction (from reality to truth). To this view, I have one strong reply and one weak reply, which correspond to the (strong reading) and (weak reading) in section 1.3.

The strong reply is: the asymmetric task is not trivial because the *lack* of dependence needs to be explained. Just like we have the intuition that truth depends on reality, we also have the intuition that reality does not depend on truth. I have argued in the section 1.3.1 that they are two different intuitions in the sense that one does not imply another. That is the reason why the asymmetric characteristic requires further explanation.

Given the strong reply, Audi might be willing to concede that the asymmetry task is not trivial. However, he might further respond that the lack of dependence is also explained by the semantic mechanism: if there is no such a semantic mechanism from reality to truth, then naturally there is no dependence from reality to truth.

To this response I offer my weak reply: we can be satisfied with this reply if no better choice is offered. My point is not to argue that truthmaking as grounding is necessary for the asymmetric task, but rather that it is superior than other candidates in the sense that it offers a positive explanation for the lack of dependence: positing a truthmaking relation can explain why reality doesn't depend on truth positively, especially when truthmaking is cashed out in grounding terms (definition (5)): the asymmetric characteristic of grounding/truthmaking explains the (asymmetry) principle.

Consequently, for those who agree with the (strong reading), truthmaking as grounding is the proper account; for those who agree with the (weak reading), truthmaking as grounding is a better account. Having now explored positions (1) and (2) mentioned above, I turn to position (3), the view that truthmaking is a species of grounding, which seems to me to be the most promising candidate.

2.2.3.2.3 Truthmaking is a Species of Grounding

As I mentioned in section 2.2.2.1, definition (5) uses the notion of grounding to define a truth-maker[75] and accordingly a truthmaking relation.[76] In this way, the idea of truthmaking is cashed out in grounding

[75]For a summary on different writers' uses of grounding to define a truth-maker, see (MacBride 2020b, 21). Besides, see (Cameron 2018, 336-339) for an attempt to define truthmaking in terms of the converse of grounding relation. And see (Asay 2017, 18-19) for a criticism of Cameron's view.

[76]Since a definition of a truth-maker can be adjusted to become a definition of a truthmaking relation, according to definition (5), a truthmaking relation is also defined in grounding terms. Many writers (e.g., (Cameron 2018, 333), (Beebee and Dodd 2005, 105,111), (Melia 2005, 75-76), (Fine 2012, 43-44), (Simpson 2021, 4) write about truth-makers and truthmaking relations without intentionally separating them. I don't separate them either because whether they are separated or not doesn't affect my arguments.

terms.[77] A few writers consider truthmaking to be a species of grounding. They include:[78] Griffith (Griffith 2014), Rodriguez-Pereyra (Rodriguez-Pereyra 2015), and Asay (Asay 2017).[79]

Although Asay (Asay 2017), Griffith (Griffith 2014), Rodriguez-Pereyra (Rodriguez-Pereyra 2015) all agree that truthmaking is a species of grounding, they have different reasons.[80] As for Rodriguez-Pereyra (Rodriguez-Pereyra 2015, 3), grounding is the non-causal generic relation of being F in virtue of. A relation is a species of grounding if it is a specification of this generic relation (Rodriguez-Pereyra 2015, 3). Consequently, truthmaking is a species of grounding because truthmaking is the non-causal relation of being true in virtue of, which is a specification of grounding (Rodriguez-Pereyra 2015, 3). Besides truthmaking, there are other species of grounding (Rodriguez-Pereyra 2015, 3): being right in virtue of, being blue in virtue of, etc.

On the surface, Griffith's view seems to be like Rodriguez-Pereyra's view. Griffith also maintains that truthmaking is a specific form of grounding with the form of 'making F' (Griffith 2014, 212): one entity makes another distinct entity have a feature F. He suggests the truthmaking relation between x and y to be formulated with a schema: y is made F by x.[81] However, despite the superficial similarities between 'making F' and 'being F in virtue of', Rodriguez-Pereyra (Rodriguez-Pereyra 2015) and Griffith (Griffith 2014) seem to have different ideas in mind. Rodriguez-Pereyra (Rodriguez-Pereyra 2015, 3) appears to focus more on linguistic expressions when he mentions that 'being right in virtue of', 'being true in virtue of' and 'being blue in virtue of' are all species of grounding, which is the non-causal generic relation of being F in virtue of. Griffith (Griffith 2014, 210) emphasizes what the ground 'does' to what is grounded, namely, what he calls the 'directed action' from grounds to grounded.[82] In what follows, I present Griffith's view and try to clarify the meaning of his metaphorical expressions.

Griffith (Griffith 2014) makes use of what he calls the 'core notion' of grounding (Griffith 2014, 210-211) and 'forms of generation' (Griffith 2014, 210-211) to interpret the genus/species relation between grounding and truthmaking. For Griffith (Griffith 2014, 210), despite many examples of grounding, the core notion of grounding unifies them together: grounding relations are non-causal, explanatory, asymmetric and irreflexive; grounding relations relate what is less fundamental to what is more fundamental, which all involve some kind of generation of one thing from another (Griffith 2014, 211). Griffith (Griffith 2014, 210) takes the 'generation' to be a certain kind of non-causal directed action which is directed from grounds to grounded. In plain terms, 'the ground (non-causally) *does something to* what it grounds' (Griffith 2014, 210). To illustrate: one example of generation is between some elements and the set they specify (Griffith 2014, 211).[83] A set is grounded by its members and this grounding relation takes constructing as its form of generation (Griffith 2014, 211): the set is constructed out of its members.

With the core notion of grounding and the generation forms in hand, the genus/species relation between grounding tout court and the various fine-grained grounding relations is interpreted like this

However, note that not all truth-maker theorists think that there exists a truthmaking relation. Therefore, it is possible to use grounding to define a truth-maker and nonetheless reject the existence of a truthmaking relation. For debates on whether there is a truthmaking relation, see (Mcgrath 2003), (Asay and Baron 2020), (Simpson 2021).

[77] See (Correia 2014, 86-88) for a formulation of truthmaking in terms of grounding.

[78] From my perspective, (Rodriguez-Pereyra 2005) is also an example of this position: according to Rodriguez-Pereyra (Rodriguez-Pereyra 2005, 20), the truth-maker theory captures the idea that truth is determined by reality. He further uses grounding to spell out what he calls 'the insight behind the idea of truth-makers' (Rodriguez-Pereyra 2005, 21). Accordingly, the idea that truth depends on reality but not vice versa is in fact the idea that truth is grounded in reality but not vice versa (Rodriguez-Pereyra 2005, 21). Hence, Rodriguez-Pereyra's position belongs to definition (5) where grounding is used to understand what a truth-maker is. I don't include it in the list because he (Rodriguez-Pereyra 2005) doesn't state in explicit terms that truthmaking is a species of grounding.

[79] I didn't include (Correia 2014) although arguably Correia (Correia 2014, 85-88) also thinks that truthmaking is defined in terms of grounding. Since he doesn't specifically state that truthmaking and grounding stand in a genus/species relationship and truthmaking is a species of grounding, I leave it out for accuracy.

[80] Asay (Asay 2017) doesn't spell out his view in detail. In what follows, I will present what he agrees or disagrees with Griffith (Griffith 2014) and Rodriguez-Pereyra (Rodriguez-Pereyra 2015).

[81] I changed the notations. For Griffith's original formulation, see (Griffith 2014, 212).

[82] See (Audi 2020, 5) for a similar perspective on ground.

[83] Other forms of generation, according to Griffith (Griffith 2014, 212), include: constituting, supporting, arising, etc.

(Griffith 2014, 211): grounding is a genus under which various species of grounding fall; each species of grounding is defined in terms of the core notion of grounding and its form of generation. The form of generation serves as the *differentia* of each species of grounding. A differentia is a characteristic that distinguishes a species of thing from other species of the same genus. Hence, the form of generation is what distinguishes a species of grounding from other species of grounding. In this way, truthmaking, as a species of grounding, also has its specific generation form. The specific kind of generation form involved in truthmaking is 'making F' (Griffith 2014, 212): one entity makes another distinct entity have a feature F.

So far, I have shown two views on the genus/species relation between grounding and truthmaking. Now I turn to discussing how Griffith, Asay and Rodriguez-Pereyra disagree on the surrounding issues, which include the logical features of truthmaking and the relata of truthmaking.

Note that Griffith's understanding of the generation form of truthmaking comes with his specific view on what is made true and the nature of facts (Griffith 2014, 212): (i) what is made true/grounded by a truth-maker is the fact that some proposition is true. To illustrate: suppose that the existence of a pink hairbrush makes true ⟨there is a pink hairbrush⟩. According to Griffith (Griffith 2014, 212), what is grounded is the fact [⟨there is a pink hairbrush⟩ is true] instead of the proposition ⟨there is a pink hairbrush⟩; (ii) facts are arrangements of things and properties (or relations).[84] For this reason, the grounding of a fact is the grounding of an arrangement. Furthermore, according to Griffth (Griffith 2014, 211-212), an arrangement of the fact [⟨p⟩ is true][85] is the instantiation of the property of being true by ⟨p⟩. It's not clear how Griffith understands the notion of instantiation. I will try to elaborate on the notion. One way to understand the notion of instantiation is to consider it to be a relation which is between a property and the thing that has the property.[86] For example, the instantiation in Griffith's example is between the property of being true and the proposition ⟨p⟩ (which possesses the property of being true). In this way, if Griffith's view on the nature of facts is complemented by this understanding of instantiation, then an arrangement of the fact [⟨p⟩ is true] is the relation of instantiation which is between the property of being true and ⟨p⟩. Consequently, according to Griffith, the grounding of the fact [⟨p⟩ is true] is the grounding of this relation of instantiation.

However, Asay (Asay 2017, 19) and Rodriguez-Pereyra (Rodriguez-Pereyra 2015, 2-3) disagree with Griffith on what is grounded/made true. As we have seen, for Griffith, if x makes true ⟨p⟩, then it is the fact [⟨p⟩ is true] that is grounded by x. Asay (Asay 2017, 19) considers this grounded fact to be 'extraneous' (Asay 2017, 19) because normally, facts are postulated within truth-maker theory to be truth-makers instead of the thing that requires truth-makers. For him (Asay 2017, 19), what is grounded by x when x makes true ⟨p⟩ is the proposition ⟨p⟩ instead of the fact that the proposition is true.[87] And for Rodriguez-Pereyra, the relation between x and the fact [⟨p⟩ is true] is not truthmaking but another species of grounding, which he calls 'alethic-fact grounding' (Rodriguez-Pereyra 2015, 4-5).

Asay and Rodriguez-Pereyra also differ with Griffith about the logical features of truthmaking. In order to present their differences, I firstly explain a few technical terms.[88] A relation R is irreflexive, if nothing bears the relation R to itself.[89] A relation R is transitive, if if the thing a stands in the relation R to the thing b and the thing b stands in the relation R to the thing c, then the thing a also stands

[84]Cf. (Mulligan and Correia 2020, 6) for reasons against the idea that facts contain objects, properties, and relations as proper parts.

[85]I changed the notation. Griffith's original formulation is (Griffith 2014, 212): [p is true].

[86]However, if instantiation is considered to be a relation, then we face the difficulty of avoiding the Bradley's regress regarding instantiation. Roughly speaking, the Bradley's regress regarding instantiation is (Orilia and Paolini Paoletti 2020): suppose that A has the property F. For A to instantiate F, there needs to be a dyadic relation of instantiation which links A to F. But this requires a further triadic relation which connects A, F and the dyadic relation, which further requires a relation which connects A, F, the dyadic relation and the triadic relation, and so on without end. Given the difficulty of avoiding the Bradley's regress, it might be argued that instantiation is not a relation. For other views on the nature of instantiation, see (Orilia and Paolini Paoletti 2020) and (Baxter 2001)

[87]Audi (Audi 2020, 16) also maintains that what is made true is the proposition.

[88]Readers can also find the explanations in the glossary of the thesis.

[89]Two relevant relations are 'reflexive' relations and 'non-reflexive' relations. A relation R is reflexive if everything bears the relation R to itself. A relation R is non-reflexive if it is not that everything bears the relation R to itself. In other words, a non-reflexive relation is a relation that is not reflexive.

in the relation R to the thing c. A relation R is asymmetric,[90] if if the thing a stands in the relation R to the thing b, then it's not that the thing b stands in the relation R to the thing a. To illustrate: the relation 'is taller than' is irreflexive, transitive and asymmetric. It is irreflexive because nothing is taller than itself. It is transitive: if Jessica is taller than Sam, and Sam is taller than Lily, then Jessica is also taller than Lily. It is also asymmetric: if Jessica is taller than Sam, then it's not that Sam is taller than Jessica. After explaining these technical terms, now I turn to how Griffith, Asay and Rodriguez-Pereyra understand the logical features of truthmaking. While Griffith (Griffith 2014, 210) holds the view that truthmaking is irreflexive and asymmetric, both Asay and Rodriguez-Pereyra consider truthmaking to be not irreflexive, not asymmetric and not transitive: truthmaking is not irreflexive because ⟨there are propositions⟩ makes itself true (Asay 2017, 20). Since an asymmetric relation needs to be irreflexive, truthmaking is not asymmetric either. Truthmaking is not transitive: it's plausible that Socrates, *as a man*, is a truth-maker for ⟨there is a man⟩ and the proposition ⟨there is a man⟩, *as a proposition*, is a truth-maker for ⟨there is a proposition⟩. However, it doesn't seem to be plausible that Socrates, *as a man*, is a truth-maker for ⟨there is a proposition⟩.

[90] Three relevant relations are 'symmetric' relations, 'non-symmetric' relations, and 'anti-symmetric' relations. A relation R is symmetric, if if the thing a stands in the relation R to the thing b, then the thing b also stands in the relation R to the thing a. A relation R is non-symmetric if it is not that it is symmetric. A relation R is anti-symmetric if if two things bear the relation R to each other, then they are the same thing.

3 The Grounding-Representation Account

In chapter 2, I considered two groups of theories which attempt to explain the dependence asymmetry between truth and reality. The N group, which denies a genuine dependence relation between truth and reality, includes the conceptual account and the semantic mechanism account. The main problem of the conceptual account is that, it mistakes the dependence asymmetry for conceptual asymmetry (see section 2.1.1.4). As for the semantic mechanism account (section 2.1.2), although it properly explains truth's dependence on reality, it doesn't offer a positive explanation for the (asymmetry) principle, which states that reality doesn't depend on truth. As I have mentioned in my research framework (section 1.3), if there is an account which can also offer a positive explanation for (asymmetry), then it is better than the semantic mechanism account (the weak reading). In contrast to the N group, theories in the Y group accept a genuine dependence relation between truth and reality. They differ in how they account for the dependence relation. The supervenience account (section 2.2.1) makes use of the notion of supervenience. However, the non-symmetric characteristic of supervenience makes it unable to explain (asymmetry). As for the truth-maker theory, whether it is plausible depends on how one defines a truth-maker and accordingly the truthmaking relation. I discussed the difficulties that were faced by definitions (1-4), and concluded that we should use grounding to understand the truthmaking relation. In section 2.2.3.2, I've shown that the most promising view on the relation between truthmaking and grounding considers truthmaking to be a species of grounding.

In this chapter, I present the account which best captures the asymmetric dependence, which I call 'the grounding-representation account'. The grounding-representation account is a modified version of Schaffer's account, according to which truthmaking is a kind of grounding relation. I will firstly introduce Schaffer's account (section 3.1). After that, I present the grounding-representation account (section 3.2). At the end of the chapter, I consider possible objections and replies (section 3.3).

3.1 Schaffer's Account

As I mentioned that, the grounding-representation account is a modified version of Schaffer's account, in this section I present Schaffer's account. Before I present the concrete content, I explain why I base the grounding-representation account on Schaffer's account. In my view, truthmaking as grounding is a promising account of asymmetric dependence, and many writers have discussed the relation between truthmaking and grounding.[91] Their discussions have three focuses: the relata of truthmaking or grounding relation;[92] the formal structures of the truthmaking or grounding relation;[93] the generation form[94] of truthmaking as grounding.[95] However, few writers[96] approach the problem according to the core idea of truthmaking, which consists in the dependence of truth on reality. In other words, reality is more fundamental than truth in the sense that it determines truth. For example, the truth of ⟨the sun is bright⟩ is determined by the reality, namely, that the sun is bright. Hence, if grounding is to capture the dependence of truth on reality, it should be used as a tool to figure out what is fundamental and what is not. For this reason I adopt Schaffer's framework of grounding, according to which grounding is used as a tool to figure out what is fundamental.[97]

Now I turn to the concrete content of Schaffer's account. Similar to Griffith (Griffith 2014), Rodriguez-Pereyra (Rodriguez-Pereyra 2015), and Asay (Asay 2017), Schaffer (Schaffer 2010) also sees the truthmaking relation as a kind of grounding relation. He takes 'substance' (what makes true) and 'truth' (what is made true) as the relata of the truthmaking relation, and has specific views on both. The term

[91] For example, I have mentioned 3 of them in section 2.2.3.2. They are Griffith, Asay and Rodriguez-Pereyra.
[92] See (Griffith 2014) for an example.
[93] (Rodriguez-Pereyra 2015) argues that truthmaking as grounding is neither transitive, nor irreflexive, nor asymmetric. (Tahko 2013) argues that grounding might not be transitive.
[94] See section 3.2.1 below for the explanation of generation form.
[95] See (Audi 2020), (Griffith 2014).
[96] See (Schaffer 2009), (Schaffer 2010) for an exception.
[97] There are (at least) two different frameworks of grounding. Fine (Fine 2002) uses grounding as a tool to figure out what exists and what does not exist. Schaffer (Schaffer 2009) uses grounding as a tool to figure out what is fundamental and what is not.

'substances' is used to refer to fundamental things. In his words (Schaffer 2009, 351), a substance is a 'basic, ultimate, fundamental unit of being'. In this way, a substance is a thing which doesn't depend for its existence on other things. For example, if an orange is considered to be a substance, then it doesn't depend for its existence on other things. In contrast, if something is not a substance, then it depends on other things for its existence. For example, if mental states are not substances, then they depend on other things (e.g., physical states) for their existences. Substances are components of Schaffer's *ordered metaphysics*. According to Schaffer, his ordered metaphysics is a specific view of metaphysical structure (Schaffer 2009, 354), which best captures the structure of reality (Schaffer 2009, 355). It maintains that the target of metaphysical inquiry is to have an ordered hierarchy of being, which is generated from substances and grounding relations. In this ordered hierarchy of being, there are fundamental and derivative things. This distinction is exclusive and exhaustive. Substances and grounding relations are fundamental in the ordered hierarchy, and all other derivative things are generated from them. Given any thing, if it exists, then it is either a substance, a grounding relation, or a derivative thing. For example, since an orange cannot be a grounding relation, in the ordered hierarchy of being, it is either a substance or a derivative thing.[98]

Having introduced Schaffer's view on the make-true relatum (namely, substances), now I turn to Schaffer's view on the made-true relatum (namely, truth). Although Schaffer claims that he only has 'a fairly anodyne formal assumption' (Schaffer 2010, 309) on truth and doesn't say much about the nature of truth, his view on truth turns out to be specific. For him, truth has substantial ontological commitment: in one place (Schaffer 2010, 309), he considers truth to be a 'two-place relation between a proposition and a world w'. In another place (Schaffer 2010, 309), he specifies truth as 'the relational property of being true at a world', which is borne by propositions. Regardless of whether truth is a two-place relation or a relational property, it has substantial ontological commitment: if truth is a two-place relation, then we might need to commit to the existence of a relation in our metaphysical picture; if truth is a relational property, then we might need to commit to the existence of a property in our metaphysical picture. This is very much different from the deflationist conception of truth,[99] which sees the predicate 'true' as an expressive device and has no substantial ontological commitment.

Having more precisely characterized the notions of truth and substance employed by Schaffer, we can now formulate his view on the relation between truthmaking and grounding as follows (Schaffer 2010, 310):

(Schaffer) *the truthmaking relation is the relation of grounding between substance and truth.*

3.2 The Grounding-Representation Account

Having presented Schaffer's account, according to which the truthmaking relation is the relation of grounding between substance and truth, now I turn to the grounding-representation account. As I mentioned, the grounding-representation account is the account that best captures the asymmetric dependence. I will firstly explain what the generation form of truthmaking (as a kind of grounding relation) is (section 3.2.1). After that, I present three modifications on Schaffer's account (section 3.2.2). At the end, I formulate the grounding-representation account and discuss its consequences (section 3.2.3).

3.2.1 The Generation Form

I have shown that truthmaking is a specific kind of grounding relation. Now I further argue that truthmaking is a specific kind of grounding relation with a specific generation form. For the sake of clarity, I will firstly lay down the terminologies that I use. Suppose that A makes B true, I call A the 'make-true relatum' and B the 'made-true relatum'. Suppose that A grounds B, I call A 'the ground' and

[98] In contrast, there are two other views on the target of metaphysical inquiry (Schaffer 2009, 354-356): the flat view (Schaffer 2009, 355) maintains that the target of metaphysics is to figure out what exists and what does not. The sorted view (Schaffer 2009, 355) maintains that the target is to figure out how many categories of entities there are, and which entity belongs to which category.

[99] For the deflationist conception of truth, interested readers can see (Horwich 1998), (Field 1986), (Horsten 2011). For the distinction between the deflationist and inflationist conception of truth, readers can see (Beall and Glanzberg 2008) and (Asay and Baron 2020, 108-109).

B 'the grounded'.[100] With these terminologies, I can now explain what a generation form is. A *generation form* describes how the grounded is grounded in the grounds. For example, it could be argued that a set is grounded in its members in the sense that, by the extensionality principle, its identity is determined by its members and only its members. The generation form in this case is, arguably, construction (Griffith 2014, 206-207).[101] Hypothetically, a mental state is grounded in the brain state in the sense that the brain state realizes the mental state. The generation form is realization. I argue that true propositions are grounded in truth-makers in the sense that the true propositions represent truth-makers. Hence, the generation form of truthmaking is representation (I will elaborate on this in section 3.2.2.1 below).

An alternative (as I mentioned in section 2.2.3.2.3), suggested by Griffith (Griffith 2014), is that the generation form of truthmaking is 'making F' (Griffith 2014, 212): one entity makes another distinct entity have a feature F.[102] I disagree with Griffith on this. Since I will present my view later, I can only sketch the reasoning here. The main reason is that I prefer to treat truth and truth-bearers (i.e., propositions) as a whole package which represents reality. Therefore, a truthmaking relation is between the non-representational make-true relatum (i.e., some portion of reality) and the representational made-true relatum (i.e., true propositions as a whole). Griffith's generation form separates truth from truth-bearers. It implies that truthmaking is between reality and propositions: an entity (a truth-maker) makes a proposition have the feature truth. Since I don't separate truth from truth-bearers, I take representation instead of 'making F' as the generation form of truthmaking.

Given the above elaborations on the notion of generation form, I endorse the following minimal requirements on the grounding relation:

(1) grounding is a genuine relation.[103]

(2) a grounding relation is asymmetric[104] and cross-categorical.[105] A grounding relation is cross-categorical in the sense that its relata can come from multiple ontological categories (facts, individuals, etc.),[106] and the categories of two relata don't have to be the same.

(3) grounding is both unitary and variegated[107] in the sense that there is a generic grounding relation as genus and other specific grounding relations as species of the genus.

(4) different specific grounding relations have different generation forms.

Having explained the generation form of truthmaking as grounding and presented the minimal requirements on grounding, now I turn to the modifications on Schaffer's account.

3.2.2 The Modifications

I mentioned above that the intuition of asymmetric dependence is (partially) captured by truthmaking as grounding. Given Schaffer's definition of truthmaking, now the intuition is captured by the idea that truth is grounded in the fundamental substances. If we further adopt his framework of ordered metaphysics (Schaffer 2009), then the picture of truth's dependence on reality is: there are some fundamental substances in reality, which serve as truth-makers. What is made true (truth) is derivative

[100] There is no standard terminology for B in the literature so far, and writers use different expressions: for example, (Raven 2015, 328) and (Raven 2020, 4) use 'the grounded', and (Correia and Schnieder 2012a, 17) uses 'what is grounded'.

[101] According to Griffith (Griffith 2014, 207), a set is constructed out of its members because 'multiple entities some how come together to make or form a unity'. That is to say, multiple things come together and they form a set, which has these things as its members.

[102] A similar view can be found in (Rodriguez-Pereyra 2015) where he considers truthmaking to be the relation of being true in virtue of.

[103] Cf. (Correia 2014), (Fine 2012). They see grounding expressions as sentential connectives and don't ultimately commit to the existence of grounding relations.

[104] Cf. (Asay 2017), (Rodriguez-Pereyra 2015). They maintain that grounding relations are not asymmetric.

[105] Cf. (Rosen 2010), (Audi 2020). According to Rosen and Audi, the relata of grounding are facts.

[106] For explanations of 'facts' and 'individuals', see the glossary in chapter 5.

[107] Cf. (Audi 2020), (Schaffer 2009), (Fine 2012). Audi (Audi 2020) and Schaffer (Schaffer 2009) consider grounding to be unitary. According to Fine (Fine 2012, 40), if grounding is a relation, then it is variegated in the sense that grounding is a disjunction of multiple relations. Note that Fine himself holds the view that grounding expressions are sentential connectives.

(non-fundamental) in the sense that it is generated from the substances with the help of the grounding relations, which are also fundamental in the ordered hierarchy.

In general, I think Schaffer's picture of truthmaking is right. Truthmaking is about truth's dependence on reality, and grounding is a good candidate for this dependence relation. I only disagree with him on the following three points: (1) what is the make-true relatum; (2) what is the made-true relatum; (3) how the made-true relatum is grounded in/generated from the make-true relatum;

3.2.2.1 What is the Make-True Relatum

As I mentioned, truthmaking is a kind of grounding relation. I call this grounding relation 'g_t'. There are other kinds of grounding relation, and I call these grounding relations 'g_f'. If the grounding relation between A and B is g_t, then A is g_t-grounded in B. If the grounding relation between A and B is g_f, then A is g_f-grounded in B. Having identified the terminologies I used, now I argue that truth is g_t-grounded in both fundamental and non-fundamental things. Non-fundamental things are further g_f-grounded in fundamental things. Consequently, both fundamental and non-fundamental things serve as make-true relatum.[108] In addition, I maintain that a grounding relation doesn't have to be one to one. A true proposition can be g_t-grounded in more than one truth-maker, provided that the true proposition has more than one truth-maker.

Since Schaffer holds the view that there is only one kind of grounding relation, for him, g_t and g_f are the same kind of grounding relations. Since they are the same kind of grounding relations, it could be argued that, if A is grounded in B, and B is further grounded in C, then A is also grounded in C. This is the transitivity of grounding relations. Consequently, Schaffer maintains that truth is merely grounded in fundamental things. Afterall, with the transitivity of grounding, non-fundamental things are at the end grounded in fundamental things. However, from my perspective, g_t and g_f are different kinds of grounding relations. More precisely, they are different species of grounding relations with different generation forms. In this way, it's doubtful that the transitivity of grounding holds across different kinds of grounding relations. It might be that, even if A is g_t-grounded in B, and B is g_f-grounded in C, no grounding relation stands between A and C. Moreover, non-fundamental things are grounded in fundamental things in many ways. Therefore, g_f is not a single grounding relation but multiple grounding relations with different generation forms, which makes it more difficult to preserve transitivity.

3.2.2.2 What is the Made-True Relatum

Having modified Schaffer's view on the make-true relatum and argued that both fundamental and non-fundamental things serve as the make-true relatum, now I turn to the made-true relatum. Schaffer's view on the made-true relatum is ambiguous. I will firstly point out the ambiguity of Schaffer's view and then present my view on the made-true relatum.

As far as I'm concerned, like many other writers,[109] Schaffer doesn't pay enough attention to the problem of what is made true. His words are ambiguous, and it is not clear what he takes as the made-true relatum of the truthmaking relation. Schaffer (Schaffer 2010, 309) says that what is made true is 'the truth of a proposition p at a world w'. But this expression allows many readings. The made-true relatum[110] could be the following: (1) the property or the relation truth; (2) the proposition

[108] See (Schaffer 2010) for the idea that truth is merely grounded in fundamental things, which he calls 'substances'.

[109] For concrete examples, see (Rodriguez-Pereyra 2015, 2), (Correia 2014), (Correia and Schnieder 2012b). (Rodriguez-Pereyra 2015, 2) claims straightforwardly that 'truthmaking is a relation that obtains between a true proposition and that in virtue of which it is true'. However, instead of the true proposition itself, it is also plausible to take 'the truth of the proposition' as the made-true relatum. (Correia 2014) and (Correia and Schnieder 2012b) use grounding to define truthmaking and take [p is true] as what is grounded, namely, what is made true. For an exception, see (Griffith 2014) where Griffith considers in detail what should be the relata of truthmaking and also the resulted theories of truthmaking.

[110] I don't take the world w into consideration because it doesn't matter for my argument. If the world w is taken into consideration, then the made-true relatum could be: (1) the property or the relation truth at world w; (2) the proposition p's instantiation of the property or the relation truth at world w; (3) the true proposition ⟨p⟩ at world w.

p's instantiation of the property or the relation truth; (3) the true proposition ⟨p⟩. For him, truth is 'dependent' (Schaffer 2010, 310), 'not a basic constituent of reality' (Schaffer 2010, 310) and 'truth must be made from the fundament' (Schaffer 2010, 310). However, (1), (2) and (3) are all compatible with these characterizations of truth within his framework of ordered metaphysics. From my perspective, the crux of the problem is: 'dependency' and 'fundamentality' are not the proper concepts to tell us what is made true. To decide which one of (1), (2) and (3) is the made-true relatum, we need to appeal to specific views on the nature of truth, instantiation, and proposition. The mere idea that truth is not fundamental will not tell us the concrete structure of the made-true relatum.

After pointing out the ambiguity of Schaffer's view on the made-true relatum, I present my view on the made-true relatum: **when we consider dependence asymmetry, it's best to treat truth and propositions as a package which serves as the made-true relatum.** I use '[[⟨p⟩ is true]]' to represent the whole package of truth and propositions. What is the nature of this package? I will argue for a permissible view on the nature of the package. That is not to say, the nature of the package doesn't concern us at all. Presumably, our view on the nature of the package will influence our view on the nature of representation. However, I suggest that we should set aside the problem of the package's nature temporarily, so that we can better focus on the interaction between [[⟨p⟩ is true]] and reality. Having presented my view on the made-true relatum, now I turn to the currently available combinations of views on truth and views on propositions, in order to show that the package [[⟨p⟩ is true]] is compatible with different views on truth and propositions.

(i) Russellian propositions + the correspondence theory of truth

Roughly speaking, a Russellian proposition (King 2018, 311-313) is a complex structured entity which has individuals and relations as constituents (see section 2.1.2.3). If one maintains the correspondence theory of truth, then a proposition is true iff it corresponds to some fact (Pitt 2020, 16). One way to elaborate on the correspondence relation is to say that it holds between a proposition and a fact when the proposition and the fact have the same structure and at each structural position, they have the same constituents (Glanzberg 2021, 7-10).[111] The nature of the correspondence relation doesn't concern us. What matters is that, the package [[⟨p⟩ is true]] now contains a Russellian proposition ⟨p⟩ and a correspondence relation.

(ii) Russellian propositions + the deflationary conception of truth[112]

One might, instead of a correspondence theory of truth, hold a deflationary conception of truth. According to a propositionalist version of deflationism (Stoljar and Damnjanovic 2014, 8-9), instances of this schema capture everything significant about truth (Stoljar and Damnjanovic 2014, 5): the proposition ⟨p⟩ is true if and only if p. There are different ways to interpret the 'if and only if' in the schema (Stoljar and Damnjanovic 2014, 9-10). If it is interpreted as an analytic equivalence, then the right-hand side of the schema means that same as the left-hand side of the schema. If it is interpreted as a material equivalence, which means that it is the biconditional in classical logic, then the right-hand side and the left-hand side are either jointly true or jointly false. But they don't have to have the same meaning. For example, the proposition ⟨all birds are birds⟩ always has the same truth-value as the proposition ⟨a paramecium is a paramecium⟩. But these two propositions don't have the same meaning: it is possible that one understands ⟨all birds are birds⟩ without understanding ⟨a paramecium is a paramecium⟩ because she doesn't understand the term 'paramecium'.

Although deflationists have different views on how to interpret the 'if and only if', they general deny that there is a substantial property of truth. For example, they would deny that truth is a correspondence relation. For them, the predicate 'true' is just an expressive device. In this way, the package [[⟨p⟩ is true]] now is arguably[113] just the Russellian proposition ⟨p⟩.

[111] This elaboration requires us to accept a specific view on facts (Glanzberg 2021, 7): facts exist, and they are composed of particulars, properties and relations.

[112] For disputes on the use of 'deflationism', see (Künne 2003, 19-20). Here I use 'the deflationary conception of truth' in contrast to the correspondence theory and the coherence theory. Therefore, I use it for the view that there is no substantial property of truth.

[113] A deflationist must not maintain that the package [[⟨p⟩ is true]] just is the proposition ⟨p⟩. A deflationist might also hold the view that, although truth is not a substantial property, it is still a logical property (Horwich 1998, 37-40). In this way, the package contains the proposition ⟨p⟩ and the logical property of being true. Note that truth, as a logical property, is not substantial in the sense that it is not a property which is like the property

(iii) Fregean propositions + the correspondence theory of truth or the deflationary conception of truth

Fregean propositions are structured entities with constituents which are the senses of subsentential expressions making up the sentence (Speaks 2021, 27). Frege distinguishes 'senses' from 'references'. Senses are modes of presentations, which determine references of expressions (Speaks 2021, 27,31). Fregean propositions are not part of the external physical world. They are non-spatial and non-temporal, and they occupy a third realm (King 2018, 309). If one endorses Fregean propositions and the correspondence theory of truth, then the package [[⟨p⟩ is true]] contains a Fregean proposition and a correspondence relation. If one endorses Fregean propositions and a deflationary conception of truth, then the package [[⟨p⟩ is true]] contains a Fregean proposition and the logical property of being true. (I mentioned that a deflationist might consider truth to be a logical property. It can certainly be that the package is just a Fregean proposition. Since this situation is like (ii), I present another possibility for deflationists here.) One might think that the idea of the package 'containing' something is not clear. There are several different understandings of the idea that the package [[⟨p⟩ is true]] contains a Fregean proposition and a logical property of being true: (1) the package is a mereological sum of the proposition and the logical property; (2) the package is a set which has two members. One of them is the proposition and another is the property; (3) the package is the proposition's instantiation of the logical property. I will argue later that all these understandings are permissible.

Now I argue for the permissible view on the nature of the package [[⟨p⟩ is true]]. As I mentioned, I suggest that we should temporarily set aside the problem of the package's nature, so that we can better focus on the interaction between truth and reality. The problem will come up again when we need to decide on the nature of representation. In order to argue for the permissible view, I need to argue for the following two points:

(1) a permissible view on what the package contains

(2) a permissible view on how the package contains what it has

The reason is that, as I have shown, there are different possibilities of what the package contains. And for one possibility, there are also different ways to understand how the package contains what it has.

My argument is: the dependence asymmetry is about the interface between truth and reality. When we discuss the dependence asymmetry, what matters is the interaction between representational truth and non-representational reality, but not the interaction between proposition and truth. Since propositions always come with a certain truth-value, there is no need to separate them when we discuss dependence asymmetry. Truth and propositions should be treated together as 'representational truth', which is constrained by non-representational reality. The package [[⟨p⟩ is true]] is the representational truth. The exact structure of the 'representational truth' doesn't concern us here. Suppose that the package contains a Russellian proposition and a logical property truth. It might be that the Russellian proposition instantiates the property of truth. It might also be that the 'representational truth' is the mereological sum of the proposition and the property. No matter how the package contains the proposition and the property, what matters for the interaction between truth and reality is just the representational characteristic of the package.[114] Consequently, I argued for a permissible view on how the package contains what it has, which is (2).

Moreover, suppose that, instead of a Russellian proposition and a logical property of truth, the package merely contains a Russellian proposition. This doesn't affect the idea that truth and propositions should be treated together as 'representational truth'. For those who maintain that truth is merely an expressive device, the 'representational truth' might just be the proposition itself. I think questions regarding the nature of truth, propositions and relations between them cannot be answered by

of being red (Stoljar and Damnjanovic 2014, 14-15). If an apple is red and a rose is red, then there is a common explanation as to why they are both red: the right light reflects off the apple and the rose. However, according to the deflationary conception of truth, two propositions are true for different reasons. For instance, the proposition ⟨the earth runs around the sun⟩ and ⟨Berlin is the capital of Germany⟩ are both true. They are true for different reasons: ⟨the earth runs around the run⟩ is true because of gravity; ⟨Berlin is the capital of Munich⟩ is true because of some historical reason. There is no common explanation as to why they are both true.

[114] Although our view on the nature of representation might be influenced by our view on the nature of the package, the influence is not our current concern.

investigations into dependence asymmetry.[115] The relation between truth and propositions is likely not the same as the relation between representational truth and non-representational reality. For example, I hold the view that representational truth is grounded in non-representational reality. However, it is very likely that the relation between truth and proposition is not a kind of grounding relation.[116] In my view, the fact that they (the interaction between truth and proposition and the interaction between representational truth and non-representational reality) involve different kinds of relation is the reason why the discussions[117] on the topic seem to be all over the place. Consequently, I argued for a permissive view on what the package contains, which is (1).

Treating truth and proposition as a whole package which serves as the made-true relatum is not only justifiable but also beneficial: it fully makes use of the advantage of grounding relation. Grounding is a relation on metaphysical dependence and metaphysical priority, which is what we need for dependence asymmetry.

3.2.2.3 How the Made-True Relatum is Grounded in the Make-True Relatum

Having presented the modifications on the make-true relatum and the made-true relatum, now I turn to the relation between these two relata. As I explained the notion of generation form, I mentioned that different grounding relations have different generation forms (see (4)). Griffith (Griffith 2014) takes 'making F' ('making true') as the generation form of truthmaking, and Rodriguez-Pereyra (Rodriguez-Pereyra 2015) also maintains that truthmaking is a species of grounding with the form of 'being true in virtue of'. I disagree with Griffith and Rodriguez-Pereyra. In this section I will further elaborate on the generation form of truthmaking by considering how the made-true relatum is grounded in the make-true relatum. In my view, representation is the generation form of truthmaking: true propositions are grounded in truth-makers in the sense that they represent the truth-makers. False propositions are not grounded in truth-makers in the sense that they don't represent any truth-makers.

What is representation? There are all kinds of representations: maps, sentences, mental phenomena, signs, etc (Szabó and Thomason 2018, 123-124). For example, a map of Beijing tells us how to get to the Palace Museum because it represents the Palace Museum as a dot on the map. When I am thinking about the mango I just bought, my thought represents the mango. A representation might be understood as an object with semantic properties such as content, reference, truth-value, etc (Pitt 2020, 1). Although this might not cover all kinds of representations,[118] I think it is a good starting point to understand the relation between truth and reality. Roughly speaking, when we consider dependence asymmetry between truth and reality, reality is the thing that is represented, and truth is the thing that represents. Therefore, I speak of 'representational truth' and 'non-representational reality'. As I mentioned above, the representational truth is the package [[⟨p⟩ is true]] and it is grounded in some portion of reality. This grounding relation is a specific kind of grounding relation with representation as its generation form. For example, the representational truth [[⟨strawberries in the greenhouse are sweet⟩ is true]] is grounded in the non-representational reality, namely, strawberries in the greenhouse. The representational truth [[⟨Jupiter is the largest planet in the solar system⟩ is true]] is grounded in non-representational reality, namely, the planet Jupiter.

I distinguish two different ways to understand representations. If a representation is understood as an object with a truth-value, then there are true representations and false representations.[119] Suppose that

[115] For an opposite opinion, see (Griffith 2014, 212). Griffith maintains that a truthmaking account should incorporate the nature of truth. It should tell us whether truth is correspondence, coherence or other things.

[116] One exception is: if the truth of ⟨p⟩ is taken as the trope '⟨p⟩'s truth-ness', then it might be plausible to say that the trope is grounded in ⟨p⟩.

[117] For example, (Rodriguez-Pereyra 2015) takes the proposition ⟨p⟩ to be the made-true relatum. (Griffith 2014) and (Correia and Schnieder 2012b) take the truth-fact ([⟨p⟩ is true]) to be the made-true relatum. (Schaffer 2010) seems to take truth as the made-true relatum, although his view on the nature of truth is ambiguous.

[118] For example, a map of Beijing doesn't seem to have those semantic properties, but it is still a representation. Cf. (Casati et al. 1999, 187-196) for the view that maps, as spatial entities, represent other spatial entities (e.g., cities) and have a semantics.

[119] For an example of this view, see (Stampe 1977). For Stampe, representations may be accurate or inaccurate (Stampe 1977, 48). A representation is accurate if the thing represented does have the properties it is represented as having. Otherwise, the representation is inaccurate (Stampe 1977, 48). For example, the belief that a down

propositions are representations, and they represent things they are about. The proposition ⟨Jupiter is the largest planet in the solar system⟩ represents, among other things, Jupiter. It is a true proposition because Jupiter is indeed the largest planet in the solar system. In contrast, the proposition ⟨Jupiter is the smallest planet in the solar system⟩ also represents Jupiter. It's just that it is a false representation because it represents Jupiter falsely. Another way to understand representations is to say that representations are always true representations. There cannot be false representations because if a representation is false, it is not a representation at all. According to this understanding, the true proposition ⟨Jupiter is the largest planet in the solar system⟩ represents Jupiter, but the false proposition ⟨Jupiter is the smallest planet in the solar system⟩ doesn't represent Jupiter. In fact, since a false representation is not a representation at all, it doesn't represent anything. From my perspective, the second understanding of representations is more convincing. Consider the map of Beijing. The map is a representation of Beijing because it accurately depicts places in Beijing. According to the scale of the map, some maps of Beijing are more detailed, and some are less detailed. Nevertheless, they are all accurate depictions. However, if a map of Beijing is not accurate, then it is not a representation of Beijing. The map is made to represent Beijing, but it fails to do so. One related problem arises: how can we tell whether a map is a representation of Beijing or not? In other words, the term 'being a representation' is potentially vague. There are cases where we might not have a definitive answer on whether A is a representation of B or not. Consider again a map of Beijing. As mentioned above, maps have different scales. Some are more detailed and they depict all 16 districts in Beijing while some (e.g., a world map) are less detailed and they depict Beijing as a dot. It seems like that, if Beijing is depicted as a dot on a map, then the map doesn't count as a map of Beijing. After all, it doesn't provide any information about Beijing. In my view, one way to make the term 'being a representation' less vague is to set a context. We consider the question of whether A is a representation of B within a certain context. It might be that A counts as a representation of B in some contexts but not in others.[120] For example, we consider the question of whether a world map which depicts Beijing as a dot is a representation of Beijing or not. Presumably, within the context of the whole world, it counts as a representation of Beijing because it shows the geographical relations between Beijing and other cities (e.g., between Beijing and Munich). In contrast, within the context of districts in Beijing, it doesn't count as a representation of Beijing because it fails to represent the geographical relations between different districts in Beijing.

Having distinguished two different understandings of representations and argued for the second understanding, now I apply the second understanding of representations to propositions. A proposition always comes with a truth-value. If it is in a two-value logic system, then it comes with either the truth-value 'truth' or the truth-value 'falsity'. Since representations are always true representations, true propositions are representations and false propositions are not representations. The package [[⟨p⟩ is true]] is a representation and it represents the relevant portion of reality. In the Jupiter example, the package [[⟨Jupiter is the smallest planet in the solar system⟩ is true]] represents, among other things, Jupiter. Correspondingly, if we also treat the proposition ⟨Jupiter is the smallest planet in the solar system⟩ and its truth-value (namely, falsity) as a package, then the package is not a representation. If we cash out the idea in grounding terms, then the package [[⟨Jupiter is the largest planet in the solar system⟩ is true]] is grounded in reality while the package [[⟨Jupiter is the smallest planet in the solar

pillow is soft is an accurate representation because the thing represented, namely, a down pillow, does have the property of being soft. In contrast, the belief that a wood front door is soft is not an accurate representation because the thing represented, namely, a wood front door, is not soft.

[120]Presumably, there are multiple standards that can be used to set contexts. For example, there are (at least) two ways to set contexts for the example of a map of Beijing. One way is quantitative: suppose that we can measure the geographical information of Beijing and in total Beijing has 100 geographical information. In this way, if a map of Beijing contains more than half of the total geographical information of Beijing, then it is a representaion of Beijing. Otherwise, it is not a representation of Beijing. The other way is qualitative: different geographical information about Beijing is needed in different contexts. If a map provides the needed information in a given context, then the map counts as a representation of Beijing within the relevant context. For example, suppose that, in a given context, the information needed is the geographical relation of Beijing to Munich. Within this given context, a world map which depicts Beijing as a dot counts as a representation of Beijing. Suppose that, in another context, the information needed is the geographical relation between one district of Beijing and another district of Beijing. Within this context, a world map above doesn't count as a representation of Beijing.

system⟩ is false]] is not grounded in reality.[121]

Having argued that the package [[⟨p⟩ is true]] represents the relevant portion of reality, now I turn to the question: how does the package represent reality? In other words, where does the representation come from? There are different views on that. (Stampe 1977) promotes a causal theory of representation. According to him, the relation between the thing and a representation of the thing is a causal relation (Stampe 1977, 43,45). For example, the image of the moon reflected on the surface of a pond represents the moon in the sense that the moon causes the image (Stampe 1977, 48). Stampe (Stampe 1977, 48) maintains that representation is an altogether 'natural' relation in the sense that there is nothing essentially mentalistic about it. The image of the moon on the surface of a pond would still represent the moon were no minds ever to have existed (Stampe 1977, 48). According to this view, representation is in fact a causal relation. Consequently, if we adopt this view, the relation between representational truth and non-representation reality becomes causal, which conflicts with the view that truthmaking is a species of grounding, since grounding is generally considered to be a non-causal relation.

Since a causal theory of representation conflicts with the non-causal characteristic of grounding, we need to find a different way to understand the representation between the package [[⟨p⟩ is true]] and the reality. Although the nature of the representation is not yet clear, we can try to treat it as a kind of linguistic representation. We can further connect it to another kind of representation, which is mental representation. A mental representation is a mental object with semantic values (Pitt 2020, 1). For example, my belief that mango is sweet is a mental representation. This belief has its content, which is that mango is sweet, and it also has a truth-value. The belief is true if mango is indeed sweet, false if otherwise. If we consider the relations between linguistic representations and mental representations, we can see that there are 3 different views: (Szabó and Thomason 2018, 27) maintains that mental representations are prior to linguistic representations. The reason is that there cannot be any language without thoughts. However, it can also be argued that linguistic representations are prior to mental representations. One reason is that propositions are generally (see (Szabó and Thomason 2018, 134,136)) considered to be the primary bearers of truth-values: whatever has a truth-value (a belief, a sentence, a story, etc.) inherits it from a proposition. Davidson also suggested that human being's thoughts are not possible without language (Davidson 1975, 1982). The third view is that mental representations and linguistic representations are mutually dependent (Pitt 2020, 27-28). From my perspective, all three possibilities are compatible with the idea that truthmaking is grounding. Which of them is more convincing depends on one's view on other topics in philosophy. As I mentioned, one of them is the nature of the package [[⟨p⟩ is true]], since our view on the nature of the package affects our view on the nature of representation.

3.2.3 The Formulation

I have justified the modifications on Schaffer's account in the last section. Now I formulate the grounding-representation account, which is a modified version of Schaffer's account. I first start with the T schema, and then build up the grounding-representation account.

(T schema) *⟨p⟩ is true iff p*

Although writers have different views on the nature of truth, they all agree that it is the case that ⟨p⟩ is true if and only if p.[122] With the help of the (T schema), we can see that two different kinds of phenomena are involved here: the representational phenomenon '⟨p⟩ is true' and the non-representational phenomenon 'p'. It is one question to explain what the exact structure of the representational phenomenon '⟨p⟩ is true' is. It is another question how the representational phenomenon as a whole is constrained by

[121] As mentioned above, the term 'being a representation' is potentially vague. Consequently, when the term is applied to the package [[⟨p⟩ is true]], there might also be cases where we cannot determine whether [[⟨p⟩ is true]] represents certain portion of reality or not. As far as I'm concerned, this is a complicated problem in the sense that the solution (and whether there is a solution or not) depends on what kind of vagueness we have. For example, if we consider whether [[⟨oranges are sour and apples are sweet⟩ is true]] represents the reality that oranges are sour or not. The answer might depend on how we view the relation between the (portion of) reality that oranges are sour and the (portion of) reality that oranges are sour and apples are sweet. Hence, future research is needed.

[122] I don't take semantic paradoxes into account. More specifically, I only consider propositions that don't contain the truth predicate themselves.

the non-representational reality. Truthmaking as grounding aims to answer the second question. As I mentioned above, truth and proposition should be treated as a whole package, and I use '[[⟨p⟩ is true]]' to represent the whole package of truth and propositions. Now the grounding-representation account of truthmaking is:

(Grounding-Representation) *the truthmaking relation is the relation of grounding between p and [[⟨p⟩ is true]], which has representation as its generation form. The make-true relatum p can be either fundamental or non-fundamental things.*

(Grounding-Representation) improves on existing theories of dependence asymmetry (see chapter 2) in the following three aspects:

(1) by taking representation as the generation form of truthmaking, the grounding-representation account focuses on an important aspect of the interaction between truth and reality: truth represents reality. Truth depends on reality in the sense that truth is grounded in reality. Truth is grounded in reality because truth represents reality. In contrast, false propositions are not grounded in reality because they don't represent reality. Furthermore, by treating truth and propositions as a whole package, namely, the package [[⟨p⟩ is true]], the grounding-representation account helps us set aside the problem of the relation between truth and propositions and focus on the relation between the representational truth and the non-representational reality. The reason is that, regardless of the relation between truth and propositions, a true proposition (as a whole package) represents reality and a false proposition (as a whole package) doesn't represent reality.

(2) the grounding-representational account is compatible with different theories on the nature of truth and propositions. As I have shown, it is compatible with the correspondence and deflationary conceptions of truth. It is also compatible with two kinds of propositions: Russellian and Fregean.

(3) the grounding-representation account offers a positive explanation for the asymmetry characteristic of the truth-reality dependence. According to the grounding-representation account, there are two reasons why reality doesn't depend on truth: (1) the asymmetric characteristic of grounding, and (2) representation as the generation form. Since grounding is asymmetric, and the dependence between truth and reality is explained in grounding terms, the dependence between truth and reality is hence asymmetric. In addition, truth is grounded in reality because true propositions represent the relevant portion of reality. Reality is not grounded in truth because reality doesn't represent truth. In this way, compared to the semantic mechanism account, the grounding-representation account is more plausible because it can offer a positive explanation for the asymmetric characteristic. Compared to the supervenience account, the grounding-representation account is more plausible because the grounding relation involved is not reflexive. Hence, the grounding-representation account doesn't lead to the problematic result that truth depends on itself.

Having presented the advantages of the grounding-representation account, the remaining question is: what are the consequences of endorsing the grounding-representation account? More specifically, does the grounding-representation account change our conclusion on which proposition is true? I think it doesn't. What is usually considered to be true still remains to be true. The grounding-representation account is a way to explain our intuition of dependence asymmetry between truth and reality. It is better than other accounts because it can better explain our intuition, not because it changes our intuition. As I mentioned, the conceptual account is problematic because conceptual asymmetry is not the same thing as dependence asymmetry. There are examples where conceptual asymmetry and dependence asymmetry depart from each other. Consequently, if we accept the conceptual account, we might have counter-intuitive conclusions on what is true. In contrast, the grounding-representation account doesn't lead to counter-intuitive conclusions on what is true.

3.3 Objections and Replies

In this section I present 3 objections against the idea that truthmaking is a kind of grounding relation and offer my replies.

Objection 1 What about the coherence theory of truth?[123] Is the grounding-representation account

[123]A coherence theory of truth maintains that the truth of a proposition consists in its coherence with some specified set of propositions (Young 2018, 1). This specific set of propositions might be the set of propositions that

compatible with the coherence theory of truth? If not, is it an advantage or a disadvantage of the ground-representation account?

Reply: The grounding-representation account is not compatible with the coherence theory of truth. But this is not becasue of the notion of grounding or the notion of representation. Both notions are compatible with coherentism. What is not compatible with coherentism is the realism standpoint that is presupposed by the whole thesis. Therefore, the fact that it is not compatible with coherentism is neither an advantage nor a disadvantage of the grounding-representation account.

Objection 2 (Correia and Schnieder 2012b, 25-28) points out a difficulty of maintaining a strong connection between truthmaking a grounding, which is expressed with (Equivalence) below (Correia and Schnieder 2012b, 26):

(Equivalence) *e makes proposition ⟨p⟩ true iff the fact that e exists grounds the fact that ⟨p⟩ is true.*

Truthmaking between a truth-maker e and a proposition ⟨p⟩ is equivalent to grounding between the existent fact of the truth-maker and the fact that ⟨p⟩ is true. One example is: the fact that the Laws receives more attention in recent Plato scholarship[124] makes true ⟨the Laws receives more attention in recent Plato scholarship⟩ iff the fact that the Laws receives more attention in recent Plato scholarship grounds the fact that ⟨the Laws receives more attention in recent Plato scholarship⟩ is true.

To see why (Equivalence) might be problematic, we need to understand what the Aristotelian insight is. The Aristotelian insight (Correia and Schnieder 2012b, 26) is about the asymmetry of truth: ⟨p⟩ is true because p, but not the other way around. For example, ⟨antidepressants have many side-effects⟩ is true because antidepressants have many side-effects, but not the other way around. Correia and Schnieder (Correia and Schnieder 2012b) take the Aristotelian insight to indicate a grounding claim: a truth-bearer's possession of truth is grounded in what the truth-bearer is about. In this way, if we combine the Aristotelian insight with (Equivalence), a problem arises: the Aristotelian insight and (Equivalence) offer different grounds for the same truth.

Consider the true proposition ⟨snow is white⟩. Since (Correia and Schnieder 2012b, 26) takes the Aristotelian insight to indicate a grounding claim, the Aristotelian insight delivers a ground for the truth that snow is white (Correia and Schnieder 2012b, 26):

(1) *That snow is white is true because snow is white.*

Furthermore, suppose we use 'SNOW' to refer to an entity which is supposed to make it true that snow is white. It doesn't matter what the entity is. It might be a fact, a state of affairs, a trope, etc. According to the truth-maker principle (TM) in section 2.2.2, it's also plausible to claim (Correia and Schnieder 2012b, 26-27):

(2) *That snow is white is true because SNOW exists.*

According to (Equivalence),[125] (2) delivers another ground for the truth that snow is white. Consequently, (1) and (2) deliver different grounds for the same truth (Correia and Schnieder 2012b, 27).

Now the difficulty is how to understand the relation between these two different grounds. Before elaborating on the difficulty, I firstly introduce two distinctions. The first distinction is between *mediate* and *immediate ground*:[126] an immediate ground m for x is a ground which grounds x directly. In other words, m doesn't ground another ground which also grounds x.[127] A mediate ground is a ground which

are believed by an omniscient being (Young 2018, 3). It might also be the set of propositions that are believed by actual people like us (Young 2018, 3). One way to understand the coherence relation is to see it as entailment (Young 2018, 2). According to this understanding, a proposition coheres with a set of propositions if and only if it is entailed by members of the set (Young 2018, 2).

[124] See (Bobonich and Meadows 2020, 1).

[125] In my view, we don't need such a strong condition as (Equivalence). The condition 'truthmaking is a species of grounding' is enough to render it the case that (2) delivers another ground for the truth that snow is white.

[126] See (Fine 2012, 50-51), (Correia and Schnieder 2012b, 8).

[127] The distinction between mediate and immediate ground requires transitivity: if a grounds b and b grounds c, then a grounds c.

is not immediate.[128] The second distinction is between *partial* and *complete ground*:[129] a complete ground for x is a ground which doesn't have to ground x jointly with another ground. A partial ground is a ground which is not complete. In other words, a partial ground cannot ground x by itself and has to ground x together with some other (either partial or complete) ground.[130] The difficulty is: given that (1) and (2) deliver different grounds for the same truth, if both of these two grounds are immediate and complete grounds for the truth that snow is white, then the truth is overdetermined (Correia and Schnieder 2012b, 28). The overdetermination of a truth is problematic because we want our ontological picture to be as simple as possible. If both grounds are immediate and complete, it seems to be redundant to have both in our ontological picture.

There are cases of overdetermination which seem to be acceptable (Correia and Schnieder 2012b, 28): If we have a disjunction with two true disjuncts, then the truth of this disjunction is overly determined by what grounds the truth of one of its disjuncts and what grounds the truth of another of its disjuncts. However, if we consider the overdetermination to be unacceptable, then it can't be the case that both of these two grounds are immediate and complete. There are two ways to understand the relation between these two grounds (Correia and Schnieder 2012b, 27-28):

(i) *Both of these two grounds are immediate grounds while each of them is merely a partial immediate ground for the truth. They jointly provide a complete immediate ground for the truth –* ***the partiality view****.*

(ii) *Differentiate the two grounds in the way that one of them is an immediate ground and another one is a mediate ground –* ***the mediate view****.*

Both (i) and (ii) face their own difficulties. The partiality view in (i) is not convincing (Correia and Schnieder 2012b, 27-28). It's hard to see why the existence of SNOW in (2) is just a partial immediate ground but not a complete ground for the truth that snow is white. Afterall, the existence of an entity which makes it true that snow is white (namely, SNOW) is sufficient to ground the truth that snow is white. In the same vein, the ground in (1) is also sufficient for the truth that snow is white. It's rather implausible that either of them needs some other ground to jointly ground the truth.

The mediate view in (ii) maintains that one of the grounds is immediate and another one is mediate. Now the question is which one is which. There are two options (Correia and Schnieder 2012b, 27):

(a) *(1) states immediate ground and (2) states mediate ground;*

(b) *(1) states mediate ground and (2) states immediate ground.*

If (a) is the case, then the relation between these two grounds is: (a*) Snow is white because SNOW exists. If (b) is true, then the relation between these two grounds is: (b*) SNOW exists because snow is white. The problem of the mediate view is: if we agree that grounding is asymmetric, only one of (a*) and (b*) can be true.

[128] For simplicity's sake, I define immediate ground and mediate ground as if they are mutually exclusive. But there are cases where a ground is at the same time a mediate and immediate ground. Fine (Fine 2012, 51) considers an example where p is at the same time a mediate and immediate ground: Consider the truth that $p \vee (p \vee p)$. The truth p is an immediate ground for $p \vee (p \vee p)$ because p serves as its left disjunct. The truth p is also a mediate ground for $p \vee (p \vee p)$ because p grounds $(p \vee p)$ which further grounds $p \vee (p \vee p)$. Since Fine (Fine 2012, 50) defines immediate ground in terms of mediate ground, given the possibility that a ground is both a mediate and an immediate ground, he defines immediate ground to be 'one that need not be seen to be mediate' instead of 'is not mediate' (Fine 2012, 50). I define firstly immediate ground and then mediate ground in terms of immediate ground. Given that a ground might be both mediate and immediate, the more accurate definition of a mediate ground should be: a mediate ground is a ground which need not be seen to be immediate. I ignore these nuances because they don't affect my arguments.

[129] See (Correia and Schnieder 2012b, 27-28).

[130] Correia and Schnieder (Correia and Schnieder 2012b, 28) seem to use 'partial ground' to refer to a ground which cannot ground something by itself and has to ground it together with some other (either partial or complete) ground. Note that some writers use 'partial ground' in a different way. For example, Fine (Fine 2012, 50) considers a partial ground to be a ground which grounds something on its own or with some other ground. In other words, a partial ground might ground something together with some other ground but doesn't have to. It can also ground something on its own. According to Trogdon and Witmer (Trogdon and Witmer 2021, 2), Fine's use of partial ground is a 'near consensus view'. Trogdon and Witmer (Trogdon and Witmer 2021, 1) use a 'merely partial ground' to refer to a ground which cannot ground something on its own and a 'partial ground' to refer to a ground which can either ground something on its own or with some other ground.

Reply: I argue that (1) and (2) deliver the same ground for the truth that snow is white. Therefore, we don't have the overdetermination problem at the very beginning. To reiterate:

(1) That snow is white is true because snow is white.

(2) That snow is white is true because SNOW exists.

'SNOW' refers to an entity which makes it true that snow is white. In order to argue that (1) and (2) deliver the same ground, I need to argue that 'snow is white' and 'SNOW exists' express the same thing. The following is my argument:

Depending on what one prefers in her ontological picture, 'SNOW' refers to different things. Possible candidates include:[131] the fact that snow is white, the whiteness of snow, the state of affairs that snow is white, snow's instantiating the property of being white; snow's belonging to the mereological sum of all white things. Arguably, these candidates compete against each other in the sense that, as an entity which makes it true that snow is white, one merely needs one of them in her ontology. Otherwise, her ontological picture is unnecessarily redundant. Suppose that one prefers to have facts in her ontology, then 'SNOW' refers to the fact that snow is white. In this way, 'SNOW exists' states the existence of the fact that snow is white. The crucial point is, now 'snow is white' also states the existence of the fact that snow is white. It can't be the case that 'snow is white' states the existence of the state of affairs that snow is white (or other competing candidates) because if that is the case, 'SNOW exists' would have referred to the state of affairs that snow is white instead of the fact. Afterall, 'SNOW' is used to refer to whatever entity that makes it true that snow is white. Since we supposed that one has facts in her ontology, for her, snow is white is the fact that snow is white. The reality that snow is white cannot be the state of affair that snow is white or the whiteness of snow, since she doesn't have those entities in her ontology.

It doesn't matter which entity we assume to be the referent of 'SNOW' at the beginning, the point is, no matter which entity we choose, it will become the metaphysical structure of the reality that snow is white. 'SNOW exists' and 'snow is white' both state this same reality.

Given that (1) and (2) deliver the same ground, the truth that snow is white is not overdetermined (even if the ground is immediate and complete). And there is no grounding relation involved in (a*) and (b*), despite the use of 'because', which might mislead us into thinking that there is a grounding relation. Hence, we don't need to be concern about the asymmetry of grounding.

A possible rebuttal is: how can it be the case that 'snow is white' and 'SNOW exists' state the same thing? Afterall, they are two distinct sentences. I reply: although they are two distinct sentences, they state the same thing, which is the metaphysical structure of the reality that snow is white. If we consider propositions, these two distinct sentences express the same proposition which is about the metaphysical structure of the reality that snow is white. It is not that (1) That snow is white is true because snow is white and (2) That snow is white is true because SNOW exists deliver two different ground. They deliver the same ground in different terms.

Objection 3 The third objection to the idea that truthmaking is a species of grounding can be found in (Liggins 2012, 264-271).[132] Liggins (Liggins 2012, 264) holds the view that truthmaking cannot be integrated into an attractive general account of non-causal dependence. He (Liggins 2012, 268-269) considers two different possibilities of extending truth-maker theory to a general theory of non-causal dependence and argues that they both are problematic.

The first possibility of extending truth-maker theory to a general theory is to make use of dyadic dependence relations (Liggins 2012, 268). For cases of truthmaking, there is a dependence relation which objects bear to the propositions they make true. In the same vein, for cases of other non-causal dependence, there is also a dependence relation which objects bear to things that are non-causally dependent upon them. For example, suppose that there is a 'wrongmaker' (Liggins 2012, 268) which

[131] (Correia and Schnieder 2012b, 27) suggests these candidates.

[132] Liggins (Liggins 2012) himself doesn't argue against the idea that truthmaking is a species of grounding. His idea is that there is no need for a truthmaking relation (which holds between propositions and facts) to explain truth's dependence on reality (Liggins 2012, 265-266). However, his claim (Liggins 2012, 268-269) that truthmaking cannot be integrated into an attractive general account of non-causal dependence might be seen as a challenge to truthmaking as a species of grounding: if truthmaking is a species of grounding and grounding is non-causal dependence, it would concern us that truthmaking cannot be integrated into a general account of non-causal dependence.

renders it the case that a certain act is morally wrong. If a general account of non-causal dependence is to include this example, then there is also a dependence relation which the wrongmaker bears to the act it makes morally wrong. However, the dependence relations in cases of wrongmaker and the dependence relations in cases of truthmaking cannot be the same. Otherwise, it leads to a problematic result that a morally wrong act has a truth-maker and is therefore true (Liggins 2012, 268). The result is problematic because it would be a categorical mistake to say that a fact is true.[133] Roughly speaking, a *categorical mistake* is to represent something as if it belongs to one category, when it actually belongs to another category (Ryle 2009, 5-8). When a morally wrong act is claimed to be true, that is a categorical mistake because a fact doesn't belong to the category which can be true, namely, the category of truth-bearers.[134] The term 'true' is applied to truth-bearers (e.g., propositions) instead of facts. Due to this problematic result, dependence relations in cases of wrongmaker and in cases of truthmaking cannot be identified. Hence, Liggins (Liggins 2012, 268) deems this account uneconomical and turns to another more economical possibility.

Another possibility is to make use of triadic relations (Liggins 2012, 268). Instead of positing a dyadic relation which holds between a wrongmaker and an act, we posit a triadic relation which holds between a wrongmaker, an act and the property of being morally wrong. The triadic relation is expressed by a three-place predicate 'x is made F by o' (Liggins 2012, 268). In this way, truthmaking is just a special case of this triadic relation in the sense that the truthmaking relation is expressed by 'x is made true by o' where 'true' replaces 'F'. The dependence relation in cases of wrongmaker is expressed by 'x is made wrong by o'. Consequently, we have the same triadic relation in both cases of wrongmaker and truthmaking. This is more economical than positing different dyadic relations. However, the problem of this possibility is that, there are still many cases of non-causal dependence which cannot be accommodated by this triadic relation (Liggins 2012, 268-269). Liggins (Liggins 2012, 268-269) offers several examples of non-causal dependence which cannot be expressed by 'x is made F by o'. One of them is (Liggins 2012, 269): necessarily, water contains hydrogen, in virtue of the essence of water. We can see that in this example, the fact that water contains hydrogen non-causally depends on the essence of water. However, it's doubtful that this non-causal dependence can be captured by the triadic relation that is expressed by 'x is made F by o'. Therefore, no matter by using a dyadic relation or a triadic relation, truthmaking cannot be extended to a general account of non-causal dependence (Liggins 2012, 269).

Reply: In my view, whether truthmaking can be integrated into a general account of non-causal dependence or not depends on whether non-causal dependence is unitary or not. As I mentioned in section 2.2.3.1, there are different views on this: some consider grounding to be unitary, some consider it to be variegated, and others consider it to be both unitary and variegated:[135] grounding as a genus is unitary and it is variegated in the sense that it has various species. From my perspective, the first problem that Liggins (Liggins 2012, 268) points out only threatens those who consider grounding to be unitary. If grounding is in fact unitary, then it is uneconomical and even misleading to treat relations in cases of truthmaking and relations in cases of wrongmaker as different relations. However, if grounding is variegated, then treating relations in different cases as different is not only not uneconomical but also necessary. And for those who consider grounding to be both unitary and variegated, they would consider the dependence relations in cases of truthmaking and the dependence relations in cases of wrongmaker to be different species of grounding relations. In this way, they can avoid the categorical mistake of claiming that a morally wrong act is made true. Liggins' second problem (Liggins 2012, 268-269) also only threatens those who maintain that grounding is unitary: if grounding is unitary, then it seems like that the triadic relation which accommodates cases of truthmaking and cases of wrongmaker should also accommodate other cases of causal dependence. After all, they are the same unitary grounding relation. However, for those who maintain that grounding is variegated, it would not be a problem that the triadic relation cannot accommodate some cases of non-causal dependence. It's possible that these cases of non-causal dependence are different kinds of grounding relation which should be accommodated in some other way. In the same vein, those who maintain that grounding is both unitary and variegated

[133] Note that Liggins doesn't explain why the result is problematic, and he doesn't state that it would be a categorical mistake to claim that a morally wrong act is true.

[134] See the glossary for an explanation of truth-bearers.

[135] See the related footnotes in section 2.2.3.1 for examples of these views.

might view these cases of non-causal dependence to be different species of grounding relation.

Furthermore, I have argued in the modified account that 'x is made F by o' or 'making F' is not the proper generation form of truthmaking. Hence, even if it is true that 'x is made F by o' cannot capture all non-causal dependence relation, it doesn't challenge the modified account.

4 Conclusion

In the thesis, I started with a pre-theoretical intuition that truth depends on reality but reality doesn't depend on truth. I explored different theories which attempt to account for the pre-theoretical intuition. In addition, I also established a research framework: a proper theory of the dependence asymmetry should be able to explain truth's dependence on reality. The lack of dependence from reality to truth serves as an additional condition. There are two readings of this additional condition: according to the strong reading, a proper theory of the dependence asymmetry should also offer a positive explanation for the lack of dependence from reality to truth; according to the weak reading, if there are two account and both can explain truth's dependence on reality, then the one that can offer a positive explanation for the lack of dependence in another direction, is a better account.

According to whether they accept a genuine dependence relation between truth and reality, I divided the existing theories of dependence asymmetry into two groups: the N group and the Y group. The N group denies that there is a genuine dependence relation between truth and reality. It includes two theories: the conceptual account and the semantic mechanism account. The Y group accepts a genuine relation between truth and reality. It includes three theories: the supervenience account, the truth-maker theory, and the grounding account.

As far as I'm concerned, the most plausible account within the N group is the semantic mechanism account. It can properly account for truth's dependence on reality. However, it cannot offer a positive explanation for another direction of the intuition, namely, reality doesn't depend on truth. According to the weak reading, if there is another account which can offer such a positive explanation, it is a better account. At the end, I argued that, the grounding-representation account of truthmaking is a better account. The asymmetric characteristic of grounding and its generation form (namely, representation) offer a positive explanation for the lack of dependence from reality to truth.

5 Glossary

In this section I offer a glossary of some technical terms in the thesis. They are not meant to be strict definitions. In addition, the glossary is not organized in alphabetical order. I present the related terms together so that it's easier for the readers to follow.

- **Propositions**
  - **atomic propositions & non-atomic/complex propositions**: *an atomic proposition is a proposition which doesn't have a smaller part that is still a proposition. For example, the proposition ⟨Joe walks⟩ is an atomic proposition because neither 'Joe' or 'walks' is a proposition; a non-atomic or complex proposition is a proposition that is constructed from atomic proposition(s) by using logical connectives, such as negation, conjunction, disjunction, etc.*
- **Truth-values**: *in classical two-valued logic, the truth-value of a proposition is the truth or falsity of the proposition.*
- **Truth-bearers**: *truth-bearers are things that have truth-values. Possible candidates of truth-bearers include: propositions, beliefs, sentences, etc. In this thesis, I take propositions as truth-bearers.*
- **Negative truths**: *truths of negative propositions.*
- **Facts & states of affairs**: both facts and states of affairs are complexes that contain objects and properties as constituents (Textor 2021). For example, the fact [Socrates is wise] is a complex entity which contains Socrates as well as the property of being wise. One way to distinguish facts from states of affairs is: the obtaining/non-obtaining distinction applies to states of affairs but not facts. The state of affair that Socrates is wise obtains if and only if it is true that Socrates is wise.[136]
- **Individuals & properties & relations**: *they are common components of ontology. Here is one simple example for illustration: suppose there is a fluffy cat who is sleeping on a table. The cat and the table are individuals. Being fluffy is the cat's property. The relation between the cat and the table is that the cat is on the table.*
- **Relations**
  - **reflexive, non-reflexive, and irreflexive/anti-reflexive relations**:
    A binary relation R over a set X is reflexive if:
    $\forall a \in X(aRa)$
    A binary relation R over a set X is non-reflexive if:
    $\neg\forall a \in X(aRa)$
    A binary relation R over a set X is irreflexive/anti-reflexive if:
    $\forall a \in X(\neg(aRa))$
  - **transitive relations**:
    A binary relation R over a set X is transitive if:
    $\forall a, b, c \in X(aRb \wedge bRc \rightarrow aRc)$
  - **symmetric, non-symmetric,[137] asymmetric, and anti-symmetric relations**:
    A binary relation R over a set X is symmetric if:
    $\forall a, b \in X(aRb \rightarrow bRa)$
    A binary relation R over a set X is non-symmetric if:

[136] For views on facts, states of affairs, and containment, readers can see (Textor 2021) and (Mulligan and Correia 2020).

[137] A non-symmetric relation is a relation that is not symmetric. Note that not everyone endorses the term 'non-symmetric '. One might simply call it 'not symmetric'.

$\neg\forall a, b \in X(aRb \to bRa)$

A binary relation R over a set X is asymmetric if:

$\forall a, b \in X(aRb \to \neg(bRa))$

A binary relation R over a set X is anti-symmetric if:

$\forall a, b \in X((aRb \wedge bRa) \to a = b)$

* **Notes**:
  An antisymmetric relation can be reflexive, but it cannot be symmetric for two distinct elements.
  Asymmetric is the same except that it cannot be reflexive.
  An asymmetric relation is also anti-symmetric.
  An anti-symmetric relation might not be asymmetric because it might be reflexive.

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Declaration of Academic Integrity

I hereby confirm that the present thesis

Title _____

is the result of my own independent scholarly work, and that in all cases material from the work of others (in books, articles, essays, dissertations, and on the internet) is acknowledged, and quotations and paraphrases are clearly indicated. No material other than that listed has been used.

Name _____ Date _____